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Gleanings in Bee Culture

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Our Index for 1914

THE reader's attention is particularly drawn to our index for 1914, covering all departments. There are about 3000 references, showing that GLEANINGS covers a wide range and a great variety of subjects. Do not throw this index away nor these copies of GLEANINGS for 1914. A single reference may save hundreds of dollars. During the long winter evenings a beekeeper can well afford to glance over this index and pick out topics he has skimmed over during the busy rush of the summer.

Snow for Closing Entrances when Putting Hives into the Cellar

THE short snappy cold spell referred to in our last issue, almost before the ink was dried, gave way to a warm spell accompanied by rain and snow. We are putting our bees into the cellar to-day, Dec. 8, closing the entrances with light fluffy snow. Snow is an excellent thing for the purpose—the best in the world. No attention need be paid to it, for it will soon melt away after the bees have been placed, but not before they have quieted down for their long sleep.

Our Cover Picture

AT our Ault yard, west of Medina, we formerly had the hives arranged on the sidehill as shown on the Sept. 1st cover for 1913. In addition to the shelter afforded, our idea was that the hill was so steep that no fences would be necessary to keep the cattle away. However, the cattle did not seem to notice the inconvenience as much as we did ourselves. Accordingly during 1914 we had the hives arranged on the top of the hill as shown on our cover for this issue. We concluded that we could buy wire fencing cheaper than we could operate those colonies on ground so steep that while the back of the bottom-board rested on *terra firma* the front end had to be supported on stakes over a foot high.

Feeding Colonies in Mid-winter Outdoors and in the Cellar

WE would call particular attention to an article by F. P. Clare, on page 986 of this

issue. Our experience in feeding for winter late in the fall indicates that he is right. As a general proposition, however, late feeding or winter feeding should be avoided if possible; but we have repeatedly fed up apiaries just before cold weather set in by feeding a *thick hot* syrup—almost hot enough to scald the bees' feet. The heat generated will keep the colony warm until the feed is all taken down.

Syrup for late feeding should be made very thick—don't forget that. We never tried a syrup as thick as that mentioned by our correspondent, but see no reason why it would not give excellent results provided honey is used with it to prevent its hardening and going to crystals.

Many and many a colony, owing to the warm weather that has prevailed generally throughout the country until late fall or early winter, would be short of stores. A colony that is liberally supplied in the month of September will often use up a large part of its supply in brood-rearing. It is astonishing how the stores will disappear after a spell of breeding. Late breeding is a good thing in that it supplies the colony with vigorous young stock. It then becomes necessary to feed up to supply the deficiency.

Those Carload Shipments of Bees to Virginia; Breeding and Dysentery as a Result of Moving

THE second carload of bees that was sent to the Dismal Swamp, Virginia, Nov. 16, arrived in excellent condition. When they were set out after their flight it was observed that a certain set of colonies showed symptoms of dysentery. On checking up it was found that these were the colonies that were fed up on Porto Rican honey during the month of September and the fore part of October. The other colonies that gathered only natural stores from the swamps showed no spotting of the hives. The only explanation we have to offer is that the Porto Rican honey may possibly be the cause. Or this may be true: That *any* fed honey would do this when sugar syrup would not. If any of our correspondents can throw any light on this matter we

should be glad to hear from them. But we may say that the Porto Rican honey fed was of good quality; in fact, practically all the honey shipped from that island is suitable for table use.

The first carload of bees that started Oct. 20 are doing good work. The sealed brood has hatched out, and the colonies have made substantial gain in strength. The addition of young bees ready for the nectar and pollen will be a great help.

In both carload shipments it was observable that the shaking up, loading, and unloading *en route* started the queens to laying in all the hives. By the time the shipments arrived there were eggs and larvæ to be seen in all the hives. Taking it all in all, the Virginia experiment so far is more than coming up to our expectations.

This "shaking up" when bees are moved long distances from one cellar to another might not be such a good thing; and yet as we have before explained we have handled brood-rearing in our cellars to advantage.

Death of one of the Veteran Beekeepers Whose Name is Almost a Household Word in Beedom

It has been our practice at the close of the year to chronicle the names of prominent beekeepers who have died during the year. It had begun to look as if the year 1914 would not claim any one of great prominence. But as the last days of the year were passing, no less a person than T. F. Bingham, of bee-smoker and honey-knife fame, passed away at Sugar City, Col. Indeed, the name of Bingham has been in every bee journal and every bee-supply catalog for nearly half a century.

He was not only a good beekeeper himself, but one who was capable of devising short cuts, developing new ideas—yes, going even further, making inventions that caused no little stir in the bee world. Among the number might be mentioned his divisible-brood-chamber hive. While it was never called by him under that name, it was a shallow hive that could be and was worked by him on the divisible-brood-chamber plan. It was much the same hive that was later perfected and patented by the late James Heddon.

During all the days the divisible-brood-chamber hive was being exploited and its priority discussed in the 80's we find our old friend taking no hand in it, notwithstanding he was really the inventor of the closed-end frame and the divisible-brood-chamber principle, both of which were basic ideas in the Heddon patent, and around

which there was so much bitter controversy from 1885 to 1890; but the records all go to show that Mr. Bingham worked his hive and frame for years and years prior to Mr. Heddon's use of it.

Another of his inventions was the bee-smoker. While Moses Quinby was the first to bring out a bellows smoker, Bingham was the first to develop a practical device that would hold fire and not go out. He and his partner, Mr. Hetherington (a brother of the late Capt. J. E. Hetherington), brought out the Bingham and Hetherington honey-knife, the basic principle of which was a thick blade with beveled edges and an offset handle.

Mr. Bingham made a success of indoor wintering. He built a bee-cellar that was of the nature of a big cistern, wholly submerged beneath the surface of the ground. He developed a scheme for ventilating it, through an upright shaft, that was quite unique. He wintered his bees in this particular cellar for years and years with remarkable success. A description of it is given in several editions of the A B C and X Y Z of Bee Culture. In later years he perfected his earlier bee-smoker; and it is to-day one of the standard tools sold by all dealers.

Mr. Bingham never wrote very much for the bee-journals; but we find now and then an article from him. He was usually present at the Michigan conventions; and while he took no very active part in the discussions, yet what he did say was brief and to the point.

We shall not soon forget a very delightful chat with him in connection with the late W. Z. Hutchinson, immediately following one of the conventions a few years ago in Lansing. During the course of that interview we discovered that the subject of our sketch was not only a practical beekeeper, but one who had given the science of beekeeping no little consideration. He was a charming conversationalist; and one would not be in his presence very long without feeling that he was with a cultured gentleman—one who was a master of the business.

Mr. Bingham died at the ripe old age of 84. An active business man as was the subject of our sketch, who could live during these strenuous days three score years and ten, and then go it better by nearly another score, deserves no small amount of credit. To do such a thing, when nearly every one else is living too fast, and eating too much, is no small credit to the man, even if he had not distinguished himself by his advanced ideas and inventions. It is right

living that makes such things possible. Young men will do well to remember that.

Invert Sugar vs. Cheap Honey for Manufacturing Purposes

THOSE who have been selling their cheap honey to the bakers have learned during the last year or two that they have had a serious competitor in the form of an inferior product known as invert sugar. Chemically, honey is invert sugar; and all invert sugars, whether natural or artificial, have a peculiar quality when used in cakes and cookies that makes them keep soft and moist much longer than if cane sugar alone is used. A large part of the products containing any sweet sold by the large baking concerns contain some invert sugar or honey. Without one or the other they will not keep very long—that is, they will become hard and dry. Up to within a year or two honey for the purpose had no competitor, and it was used by the carload.

Within comparatively recent times the chemist has discovered a process for inverting common cane sugar, so that the product could be made and sold for less money than some of the cheaper grades of honey. When honey was cheaper than commercial invert sugar, honey was used instead; but as a general thing the bakers found that the artificial product could be secured for less money, and so they have been using it instead of honey. But in making cakes and honey jumbles they continued to use the natural product—the cheaper grades of honey—because of the flavor; and right here invert sugar is flavorless, and therefore can not quite take the place of honey.

There is no great loss without small gain somewhere. The war in Europe has brought disaster in its wake, and has caused the cheap honey of South America and the West Indies to flow into the United States, and to depress further the market for our domestic product which was already ridiculously low. But now for the compensating feature:

The war that brought cheap honey into the United States also caused the price of cane sugar to take a sharp advance. It went so high that the makers of invert sugar had to shut up their factories for the simple reason that honey, a natural invert sugar, could be bought for far less money than the artificial product, invert sugar. With sugar at seven to eight cents, it was impossible to sell invert sugar for less money than cheap honey; and so, naturally enough, the manufacturers had to go out of business, or at least so long as the war holds up the price

of cane sugar. The beet-farms of Europe have been destroyed. Seed for sugar beets came almost entirely from Europe; and next year there will be no seed, so it is said, except at extravagant prices. That means that, even though the war is over by next summer, there will be no beet sugar raised for two or three years to come. In any case, it is a safe guess that granulated sugar will not go down to normal, although it has declined some; but it can't stay down long, and that means that the beekeepers of the world are not going to have, for the time being at least, the competition of invert sugar. If this be true the influx of South American and West Indian honeys will not depress the price of the American cheap honeys, because it will just take the place of the markets that formerly were supplied by artificial invert sugar; but as soon as cane sugar finds its normal level of cost, it will be possible to make invert sugar again. By that time, on the other hand, cheap honey will have found an outlet in Europe as before.

It is possible that invert-sugar manufacturers, after they have been shut down for two or three years, will not resume operations again. In the mean time the war goes on, with no immediate prospect of a cessation of hostilities. Cane sugar is still much above normal, and will stay there. In the mean time we should begin a campaign of education to develop the fact that honey is cheaper than sugar for canning. We should show that honey is better because it has *flavor, and superior qualities as a preservative*. The war is costing the world millions and billions; but, as we said at the outset, there is no great loss without some small gain. Let us seize the opportunity that is now presented; for it is to be hoped it will never come again in the form that it has.

Standardizing Honey as a Food

WE all know that America consumes a vast amount of honey—vast when quantity alone is considered without reference to the amount consumed per capita of population; but does it, for its own good, consume enough of that delicious and wholesome sweet, and cannot the average be raised?

There is a certain market for what honey is now produced; but compared with the population of the United States that market is only in its infancy—it is capable of enormous expansion.

In considering the possibility of this expansion there need be no question about supplying the increased demand. Production can be increased with no trouble at all

to keep pace with demand—that goes without saying.

Now, then, how is the demand to be increased? Every beekeeper in this country has an interest in this question, and should be glad to help solve and see solved the problem, not just of increasing his own individual market, but of enlarging the general market; for the more universal is the honey market, the more certain are all to profit.

To arrive at the proper basis for answering this question of increase let us go into the subject from the standpoint, primarily, of *why* it is that comparatively so little honey is used.

The first and most natural answer to that question lies in the word ignorance—ignorance of the food value of honey. There has come about a gradual general forgetting on the part of the present generation of all that honey means in deliciousness and wholesomeness.

In our opinion, this has been brought about by two things—first by the gradual shifting of the bulk of the consuming population to the big cities and the consequent getting away from nature and natural foods to the more artificial life and foods which belong to city dwelling. The second cause, undoubtedly, is the big advertising which has been and is being done by the sugar-refiners and the makers of all kinds of syrups—cane and corn. This advertising has steadily and forcibly directed the attention of the consumer from that choice product of nature, honey, to the flavor, packing, and supposed deliciousness of sugar and syrups, the good points of which it has heralded with such art and persistence that to-day the average consumer thinks of sugars and syrups alone when he thinks of sweets.

Then it stands logically to reason that the only way to bring the bulk of the American people back to honey, and to make converts to the use of honey of those people who nowadays never give it a thought, is to bring honey forcibly and persistently to their attention; in short, to lift them out of their ignorance, as it were, by an educational campaign of advertising which will convince them that the most wholesome of all sweets is honey; to tell them that the inimitable flavor of honey is a palate pleasure they are robbing themselves of unless they use honey freely—on their bread, waffles, etc., and to show them that, for many cooking purposes, nothing in the world of sweeteners can compare with honey from the standpoint of flavor, keeping qualities, and economy.

We all know that, once the average person

is acquainted with honey goodness, it is almost a certainty that *that* person will continue to eat and use honey. We all know the vast influence of advertising in persuading the big general public to do what you want them to do—*provided* the thing you want them to do and the goods you want them to buy are based on honesty and quality. But *who* is to do that advertising? who is to be the pioneer in opening up the wilderness, to the profit of all producers of honey? It would hardly pay all the honey-raisers to try to get together on such a campaign. The *pro rata* of expense would be an infinitely difficult task. Yet, in the interest of all, this advertising is almost a necessary thing.

An attempt at the solution of this problem is being made by the publishers of this journal. Through their efforts, and at their expense, a strong, persistent, and consistent honey-advertising campaign has been planned, and is being put into operation. As is generally known, the A. I. Root Co. has now, as it has had for many years past, large apiaries of its own. It will be remembered, also, that Mr. A. I. Root is one of the pioneers in the production and marketing of extracted honey; and since his marked success in this field, beginning nearly forty years ago, the apiaries of Mr. Root and the A. I. Root Co. have been prominent features in their general business. In addition (this is a most important feature to consider in connection with this campaign) they are large marketers of the honey outputs of other apiaries (their friends and customers) from all over the United States. Thus, being known to distributors of food products as a big source of honey supply for the general market, both under their special brand of select honey known as Airline, and with bulk or unbranded honey, they are in the very best position to benefit all honey-raisers by advertising honey generally.

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A Retrospect for 1914

No great floods or snowstorms struck 1914 as they did in 1913; but 1914 will go down in history suffering a calamity far worse than floods, storms, hurricanes, and earthquakes all combined. If the whole of Europe were shaken by an earthquake the destruction of life and property could not be worse than what the "Great War" has wrought already. But what has the war to do with apiculture? A great deal. It has affected the honey market. It has cheapened the lower grades especially because the South American and West Indian product that formerly went to Europe is now dumped into this country to the sorrow and dis-

may of many beekeepers south and west. Some of it has been sold in New York as low as 42 cents a gallon after paying 10 cents duty, freight, and package. But fortunately such a low price could not maintain long. But the low prices for the imported article are affecting the market in many parts of the South. It is hoped the check will not be as great as was feared.

As a partial offset the war has increased the price of sugar; and this naturally has a tendency to increase the price of all honey, provided, of course, honey can compete for manufacturing and canning purposes, as it has done in many cases. This has created an outlet for some of the cheap honey that would otherwise have been a glut on the market. The war has also eliminated the competition of invert sugar that the bakers have formerly used in place of honey. It cannot now be manufactured, owing to the increased price of granulated sugar. Taking every thing into consideration, it is to be hoped the market on cheap honey has not been hit as hard as it might have been.

During 1914 the Government demonstrated that its chemists could detect the adulteration of honey with invert sugar. Now, invert sugar comes the nearest to being artificial honey of any thing that was ever put out. Chemists everywhere up to this time knew that it reacted about the same as pure honey, and were fearful they would not be able to detect its presence when mixed with honey; and apparently the old adulterators, who formerly used glucose, were of the same opinion. But the Government chemists got busy, and worked out methods for detecting the presence of invert sugar. So successful were they that one party was found guilty, and paid his fine.

The average beekeepers of the country may not realize the importance of this achievement in chemistry; but had not the Government scored a victory in this case, large quantities of bottled honey would have been adulterated with invert sugar. Mr. W. A. Selser, our chemist and manager at our Philadelphia office, regards this as one of the most important victories the Government has ever won for beekeepers, for it nipped in the bud, before it had hardly got under way, a form of adulteration that would have been serious.

The year 1914 will go down in apicultural history as the greatest year for the manufacture of bee-supplies in all the factories that was probably ever known. The record-breaking honey year of 1913 cleaned up all supplies on hand, and the prospects of 1914 were extraordinarily good at the beginning of the season, because bees had

wintered well everywhere. But the bright prospect did not materialize in a big honey crop. Throughout the clover districts in the northern part of the country, the season came very near being a failure. The West and some parts of the South, however, furnished nearly their usual quota of honey.

In the line of special legislation affecting the bee business, the national net-weight law stands out prominently as the product of 1914. It has already caused some hardships and inconvenience to the producers of comb honey, and many of them say they will quit the business and run for extracted. The elimination of the section or wood surrounding the comb is the source of complaint. It is contended that the wood is part and parcel of the package, always has been weighed in, and that on account of its varying weight it is impossible to get at the exact weight of the comb and honey inside. It is further contended that the ruling of the Bureau of Chemistry is unfair because it permits the wrapping around hams to be weighed in with the whole ham, but excludes the wood around a section of honey.

It has been our opinion right along that it was useless to buck against the inevitable, and that the operation of the net-weight law will in the end be beneficial. Under its provisions only comb honey properly graded can be marketed.

In the line of State legislation there have been no foul-brood laws passed so far as we know. Notwithstanding that, during 1913 ten States have passed such laws.

The year 1914 witnessed the installation of at least one new school of apiculture in the United States. We refer to the one established in Minnesota. This school has an annual appropriation of \$5000. Of this amount \$2000 goes to the enforcement of the foul-brood law, and \$3000 to establish and maintain a division of apiculture. Minnesota is the only State in the Union that has such a division in beekeeping not connected with some other department for instruction. Rev. Francis Jaegar was appointed by the Board of Regents of Minnesota to take charge of the work; and, so far as we can ascertain, he has done good work.

Another school has been established at the Agricultural College at Ames, Iowa. While this is on a much more modest scale than the one in Minnesota or Massachusetts, yet a beginning has been made.

Instruction is also given in apiculture at Stillwater, Oklahoma, under Prof. Sanborn, and at College Station, Texas, under Prof. Wilmon Newell.

In the mean time the apicultural school in charge of Dr. Burton N. Gates, of the Agricultural College, Amherst, Mass., is pushing ahead. It has done some splendid work, and during 1914 it entered on some new fields of investigation which have been referred to in these columns. The same is true of the school at Guelph, Ontario, Can., in charge of S. T. Pettit.

During the year 1914 Uncle Sam established permanent headquarters in a building and grounds devoted exclusively to bee culture at Drummond, a suburb just outside of Washington, D. C. All this is in charge of Dr. E. F. Phillips. He and his able assistants have done excellent work the past year in the line of diagnosing bee diseases. This is worth all it cost, even if they did nothing more.

But they have done a great deal more. During the past winter Dr. Phillips and his assistant Mr. Demuth conducted a series of experiments in wintering that were exceedingly valuable. The result showing the temperature of the winter cluster was given on page 879, November 15.

The year 1914 has seen some unusually extensive operations in migratory beekeeping. The A. I. Root Co. sent one carload of bees to Florida and brought back three and one half. They also sent two carloads of bees to the Dismal Swamp, Va., and in the mean time the Marchant Bee and Honey Co., with headquarters at Canton, O., and Apalachicola, Fla., has sent another carload of bees to Apalachicola.

Migratory beekeeping, or sending whole yards of bees by the wagon or truck to the swamps, has been practiced to some extent this year. Considerable attention has been devoted to the feasibility of keeping bees in and near swamps after the main honey-flows are over. While the publishers of this journal did, perhaps, the most extensive work in this line during the past year, others have been trying their hand at it.

In the line of improvements and inventions we might mention the gearless friction-drive honey-extractors. This will doubtless supplant all other forms for power-driven machines.

The year 1914 shows a still further tendency to run to extracted honey rather than comb. The operation of the net-weight law will augment this tendency very considerably. This is a mistake. Extracted honey is getting lower and lower in price, and comb honey is more than holding its own. If a considerable number of comb-honey producers change over to extracted they will regret it. The fact is, there should be more comb-honey producers. The net-weight

law will produce no hardship if we only make up our minds to comply with it; and the fellow who does will have no trouble in disposing of his crop.

During the early part of the year 1914 there was an unprecedented demand for queen-bees. In the month of March there was scarcely a queen-breeder who could fill half the orders. During July and August those same breeders could have reared twice as many queens if they had had the orders for them. The business is being overdone in the latter part of the season and underdone in the fore part. The breeders of the South should get busy earlier.

The year 1913 seemed to set its seal of approval on the A. C. Miller smoke method of introduction; but 1914 seems a little inclined to raise a question of doubt as to its reliability.

The year 1914 has been kind to us in that it has taken only a very few prominent beekeepers. First and foremost, without question, was Mr. T. F. Bingham, of smoker fame, dying at the ripe old age of 84. See another column.

Dr. John Phin was another man taken within the last year. While not known generally as a practical beekeeper he was the author of a number of industrial books on various lines both practical and scientific, including a dictionary of bee terms.

F. B. Cavanagh, of Hebron, Ind., a director in the National Beekeepers' Association, and one who produced large crops of honey, also died within the year. He was a brilliant beekeeper; and had he lived he would have practiced migratory beekeeping on a large scale. He not only produced large crops of honey, but sold it all direct to the consumer, for he did a large bottling business.

Aaron Snyder, of Kingston, N. Y., was another beekeeper and honey-salesman who died in 1914. He wrote more or less for the bee journals, and was well known in his part of the State because he came directly in touch with the consumer with his honey.

This reminds us that the bottling of extracted honey is now being carried on on a larger scale than ever before in the United States. Several large bottlers are engaged in the business of putting up extracted honey in glass and tin. Honey in the liquid form is now reaching the consumer in larger quantities than it ever did before.

Taking it all in all, there has been a steady gain in knowledge and progress in every thing connected with the bee business. While the great war is giving us a setback, it is not without its compensating advantage.

Dr. C. C. Miller

STRAY STRAWS

Marengo, Ill.

THE YEAR 1914 was the worst honey year in 50 years in Germany. Same here in a good many places. [The year 1915 will be another bad year, not only for beekeepers of Germany, but for all Germany, unless this awful war lets up.—Ed.]

T. B. TERRY tells about the warm drink he uses, *Practical Farmer*, 206, and says: "I use extracted honey instead of sugar, as it is more wholesome." I wonder how many beekeepers are as wise as Terry. If all the people used honey in hot drinks it would take tons and tons of it.

"THE temperature at the center of the cluster increased as the outside temperature decreased, due to the crowding together of the bees in cold weather," p. 903. Isn't it increased activity and consumption rather than crowding? Incidentally, this fact that the colder outside the warmer the center of the cluster explains why it is that breeding begins earlier outdoors than in cellar.

RIGHT you are, Mr. Editor, in saying that beekeepers are constantly inventing things that are old, p. 877, and one instance occurs on the next page. I saw quadruple winter cases used on a large scale 25 years ago within 25 miles. [The quadruple winter case was not mentioned because it was new, but because it was an old device that had been coming into prominence during late years. The late Edwin France and some before him used quadruple hives; and the old files of the *American Bee Journal*, if we remember correctly, show the modern four-hive winter case.—Ed.]

DR. BIGELOW, I believe I'm your friend, and I want to offer a word of advice. Don't you ever again run the risk of such a fool thing as you describe page 930. [We have done nearly the same thing, and we believe we can do it again. We always caution our audience, and make sure that the bees are *thoroughly disorganized*. Throwing bees into the air will do that to perfection, especially if their hive is obscured by a big crowd. All that Dr. Bigelow said is possible, but we would not go quite so far as he did with the average bunch of girls. We sometimes select two or three people to show that they can do the same stunts we do.—Ed.]

JACOB ALPAUGH, you don't tell us the thickness of foundation you use in putting in splints, p. 941. I should suppose it must be pretty heavy to bear such cutting. If you can get combs built to the bottom-bar

with splints only two-thirds length, there is a saving, and painting with wax helps. But what I can't understand is your "spoiled row of cells" when using the Miller plan. In all the years I've used the plan, in all the thousands of cells I've seen built over the splints, I don't remember seeing a single spoiled cell. Looking close at a frame of sealed brood, you will see a slight elevation of the cappings over the splints, but never a cell missing or imperfect on account of them. What can possibly make the difference between us?

G. M. DOOLITTLE, you say, p. 841, that where queenless bees are made to start queen-cells from brood given, "they generally err by selecting one or more larvæ for the purpose that are too old to produce the best queens." I wonder if your queens have really so much poorer judgment than mine. I'm sure that my bees do not *generally* err in that way, and I very much doubt that they ever do. I've tried about all the different ways of rearing queens, have reared hundreds by allowing the bees to make their own selection from brood of all ages, and these last have given just as good results as any of the others, and I think just a wee bit better. For me to destroy all sealed cells in four or five days would be only at a loss. I wonder what's the shortest time ever known from dequeening till the hatching of the young queen.

THE EDITOR tells, p. 919, about my being caught with my bees outside and wishing they were in, yet hoping against hope a warm spell might come. Yes, day after day it was 4 to 20 above, with the hope of a warm day growing fainter every day. Nov. 21 a very few bees flew. Nov. 24, 10:15 A. M., it was 44 degrees with hazy sunshine. I went the length of the apiary and saw *one* bee flying. Oh! but I felt good. I knew there was "more to follow." It went up to 52, and the bees had a glorious flight. Next day it was 58, and the next 61, and there wasn't another cold day in November. Today, Dec. 1, it is 59 and rainy. So by leaving my bees out I came out a long way ahead. But—but, *if* the warm spell hadn't come! If it were to do over again—well, I don't know which way I would decide. [You have described our situation exactly, only that our temperature did not drop down as low as 4 above. Like yourself we have been having beautiful weather, and the bees have had good cleansing flights; but just as soon as it turns cold again those bees will go into the cellar with a hustle.—Ed.]

BEEKEEPING IN CALIFORNIA

P. C. Chadwick, Redlands, Cal.

At this writing we are able to say that Pres. J. W. Ferree, of the State Association, has greatly improved from the result of his motorcycle accident, and is able to be back on his ranch. His ultimate recovery seems assured, though he is still under the care of a physician.

Destructive forest fires were reported from four southern counties last week. These fires are in reality not forest fires, but brush fires. As a rule they cover only the brush-covered hills. Occasionally they get into the heavy timber of the mountains, but not frequently.

Mr. Crane, page 883, Nov. 15, you are right in your eighth paragraph, as a rule. But the colony that produced the most honey for me the past season was about as near pure nothing as any in my yard, and would be a poor one to breed from in a land of disease.

A kindly old gentleman from the remote districts of the South applied to me for a job with the bees. I asked him if he had had experience in their care. He said, "No, I ain't had no truck with them to brag about; but I reckon I can swarm them and keep things in kelter just about as good as anybody."

Reports from various localities indicate that both varieties of foul brood are much less prevalent than last year. We hope the beekeepers have taken advantage of the opportunity to get pure stock in their yards, which is the best possible way to eradicate black or European foul brood, and no disadvantage in controlling the American variety.

"Shall I build my own hives?" asks a headline. The average beekeeper should not undertake the work. The results, as a rule, are very far from perfect, and too often botched, which puts me in mind of what a brother-in-law once said. He was working in his shop when some one brought in a piece of work that looked pretty bad, with a request for him to work it over. He viewed the job critically, and then said: "Well, that looks as if some one had done it himself." I know of one small lot of bees that belong to a carpenter's son, and are

for sale. But the hives, though made by hand and by a mechanic, are so far from being the equal of machine-sawed hives that his price is out of the question. This is especially true of the frames.

Skunks, skunks, skunks. The eastern beekeeper has little idea of the depredations committed on an apiary of the West by these troublesome little animals. During August, while away in the East, some of my hives had depressions two and three inches deep worn in the dry soil by their feet, rolling bees to kill them, after which they were eaten. Upon my return I purchased a pound of cheap beef, which I cut in pieces as large as the end of my thumb. In these pieces I cut a small opening with a sharp penknife into which I dropped a small quantity of strychnine. About thirty pieces were thus prepared for the feed, and the result was that the next time I visited my apiary it looked like a slaughter-pen—dead skunks in every direction. This ended my trouble for the season. I have previously recommended eggs for this work, but find that raw beef is equally good, and somewhat cheaper.

Mr. Doolittle, in the Oct. 15th issue, raises the question as to whether bees visit more than one kind of flower on a trip. I cannot say that I have ever seen them make the change, yet I feel sure that they must do so at times. To illustrate my point I will refer to the rapid change of the field force of the hive from the wild alfalfa to the sage bloom. On a cool foggy morning the wild alfalfa will be swarming with bees for several hours, from which they go immediately to the sage as soon as the sun comes out warm and bright, which causes the sage to secrete more freely. I cannot persuade myself to the belief that each bee with its sac more or less filled with honey from the alfalfa returns to the hive before going in quest of the nectar of the sage. The bee, as a rule, utilizes time as economically as does man, and would hardly return to the hive half loaded with stores because it wished to go to a different flower. Some claim that bees do not mix the different colors of pollen in the combs. This, to my positive knowledge, is an error, for I have observed the different colors many times in the same cell.

J. E. Crane

SIFTINGS

Middlebury, Vt.

After three or four poor years in succession, that cover picture for Oct. 1 looks pretty good, even if it is the other side of the earth.

GLEANINGS for Sept. 1 is certainly a special number on wintering. It came just in time, too, to set us to thinking, and to give us a chance to lay our plans for trying experiments or improved methods before it is time to place the bees in winter quarters.

Mr. Byer's experience in wintering small colonies on three combs, page 675, Sept. 1, shows the value of the close-fitting division-board and a hive or brood-chamber the size of the colony to be wintered. I am more and more convinced that we have not emphasized the reduction of the brood-chamber to the size of the colony as we should.

Those pictures of field meets and picnics in the Oct. 1st issue are refreshing to us who live on this side of the great beekeeping world. My! but wouldn't I have liked to be at some of them? What days those were at Medina and Des Moines, as illustrated on pages 766 and 767! Queens that will produce workers that will not do their best after such gatherings ought to have their heads pinched.

On page 671, Sept. 1, our friend Hand pours a whole boxful of woes from dysentery to European foul brood upon cellar-wintered bees. Now, if he had stated this as his *opinion* he would doubtless have told the exact truth. There are cellars and cellars; and my opinion of them is that they are very much like the maid of nursery fame whose "hair hung right down on her forehead, and when she was good she was very good; but when she was bad she was horrid."

Mr. L. W. Wells, page 682, Sept. 1, advises feeding bees for winter a syrup $2\frac{1}{2}$ lbs. sugar to one of water. On the next page he tells us that he has induced a colony of golden Italians to store 20 lbs. of sugar in seven days. Now, if it takes one colony seven days to take 20 lbs. of sugar, how long and how many colonies will be required to store 8000 or 10,000 lbs. of sugar? The thinner the syrup, the faster will bees take it; but we find they do very well when fed syrup of 2 lbs. of sugar to one of water.

Dr. Miller says, page 661, Sept. 1, "For the first three days the young worker gets the same food as its royal sisters; then it is weaned, and gets coarser food for the two remaining days, while the better bill of fare is continued to the royal youngster." We infer that he is of the opinion that the difference in development is due to the quality of food the bees receive. I had supposed that these results depended more on the quantity of food fed than on the quality.

On page 793, Oct. 15, Dr. Miller protests against any one sending him samples of foul brood, and advises sending them to Dr. E. F. Phillips, Agricultural Department, Washington, D. C. In a footnote the editor says that nothing less than a stout wooden box should be used for sending such samples through the mails. Let me add that, if any one wants to send Dr. Phillips a sample of brood, just write to him first for a package, and he will send you a nice little wooden box with a frank that you can paste on to it, and so save you postage.

J. L. Byer's experience with candy is very close to my own, as given on page 750, Oct. 1. The first I made was not quite hard enough, but later I used a thermometer and boiled till the temperature rose to 275°, and the cakes were as hard as bricks; but after standing in a cool room for a time, they would run. I could not see that bees did any better on it than where they had honey or sugar syrup in their combs. It is certainly a good deal of work to make it. We have had to feed some 10,000 lbs. of sugar this fall. If we had been compelled to make half of it into candy I imagine there would have been something doing. Candy is very convenient for feeding during winter or early spring; but as a regular diet, excuse me. It looks as though it were a sort of fad just now. There is nothing new about it. Langstroth recommended it more than fifty years ago. [The making of Good candy is a fine art. It is so very easy to overdo or underdo it that it is difficult to get it *just right*. There is no use in denying it, candy is expensive when compared to syrup; but for all that, it is about the only substitute for good sealed stores we can use in the dead of winter. Possibly "fondant" as used and recommended by our Massachusetts friends may be easier made; but, if we mistake not, that also must be made just right or it will "run" all over the bees.—Ed.]

BEEKEEPING IN THE SOUTHWEST

Louis H. Scholl, New Braunfels, Texas.

TAKING INVENTORIES OF STOCK.

How many beekeepers make it a rule to take an inventory of stock at the end of each year? We have often wondered how many do so. I have kept up this practice since the very beginning of my beekeeping, and it makes interesting reading to go over the various inventories of over twenty years. They reveal the real progress that we have made from the beginning, showing the increase in the valuation of the property from year to year, unless we have been unfortunate and have gone "backward" for some reason or other.

We have not only found it interesting to keep these yearly records, but of a great deal of value besides. In fact, since our business has grown to such an extent it becomes necessary now to make these records so that we can furnish our reports to the commercial agencies for proper rating.

MARKETING BULK COMB HONEY ALL WINTER.

Quite frequently we are not able to dispose of all of a large honey crop, especially when we harvest a good fall crop, before the winter months set in; and since the danger of granulation makes a serious road, it has become necessary for us to devise some means by which we can overcome this difficulty.

I have conducted some experiments along this line during the last two years, and have found it is possible to store comb honey in such a way in a dry warm room or a dry heated basement that it can be kept from granulating, and used whenever there is a demand for it. The extracted honey needs less attention since it can be reliquefied after it has granulated; and since we have made it a rule to heat all of our extracted honey that is used in packing the comb honey just before making the shipments to market, to prevent (for a time at least) the rapid granulation of some of our honeys, it does not matter so much if we do have to reliquefy it.

We believe we are the first persons who have adopted and successfully carried out the method of shipping honey to our customers throughout the entire winter months. Year before last we kept over winter about 6000 pounds of comb honey for an experiment along these lines. Last year we used 12,000 pounds in this way, and this year we shall carry over 40,000 pounds for this purpose. The above amounts must be more than doubled to get the amount of "bulk comb honey" that will actually result after

it is packed in the various sizes of tin receptacles used, as it takes more extracted honey than comb honey to pack any of these in the right proportions.

GUARD AGAINST FIRES.

It is amazing to find, in the reports from the State fire-insurance boards, the great number of fires that might have been prevented. And this brings to our mind the utter carelessness in this respect so often displayed by some of our beekeepers. Time and again have I seen smokers, still filled with burning contents, carelessly set inside of a building with combustibles scattered over the floor, and within easy reach of the dangers lurking in such a smoker.

It has been our policy to teach all of our assistants to be more careful with such things than they are generally, and to take the contents of the smoker from any building or any thing else that might catch fire. When they come from the out-apiaries they have learned to throw the smoker contents out before they come back home; and when they use the smokers here they have been taught to empty the contents in the fireplace under the honey-liquefying vat and to extinguish any remaining fire by throwing water over it before leaving it.

There is also another important matter that I wish to mention; and that is with regard to the cleanliness of our out-apiaries, and even the apiaries at home. There will be years when it is almost impossible to keep down the grass and weeds successfully. We have just had one of these, on account of the excessive rainfall and a consequent lack of time. But we are putting all of our efforts into a general "cleaning-up campaign" now. With the oncoming of winter and the drying-up of the vegetation the fire risk in out-apiaries where the grass and weeds have had the upper hand is exceedingly great. We have had several minor fires of this sort, and might have lost heavily in bees and hives burning if we had not at least been careful enough to keep the ground clean immediately around the hives.

It is a wonder that there are not more apiaries destroyed by fire from conditions that I have seen in many yards. Grass and weeds and leaves, where the apiary is located under deciduous trees, are all a menace, and should be cleaned away as promptly as possible. Doing this will save many a restless moment, for we are never certain about the safety of our colonies if this danger lurks near.

CONVERSATIONS WITH DOOLITTLE

At Borodino, New York.

INTRODUCING QUEENS AND SOMETHING ELSE.

"Will you tell us how to introduce queens safely? I did not have good success the past season, losing fully one-third of all I tried to put in full colonies. I once asked a man who said he had no trouble in introducing to tell me how it was done. He said he would do so if I would give him \$5.00, and that it would be cheap at that price to me. That might be so; but some way my spirit rebelled, and I was not told how."

Many times, in my experience of over forty years with queen introduction, I have thought that I had a plan that would never fail; but when a time of scarcity of nectar came, sufficient to cause the bees to be crazy for robbing, to an extent that, in trying to find the queen I wished superseded, the bees were worried almost to exasperation in trying to defend their stores, or when I had a queen to introduce which had come a long distance so that she was inclined to run about among the bees immediately on being let loose among strange bees, then it was that my sure plan did not always work as formerly. In fact, there are few things laid down in bee culture that are not likely to turn out so contrary to our previous experience and expectation that the whole industry seems to be a series of surprises (and they are not always happy surprises either), so that there are very few places where a hold-fast rule will apply.

Generally the directions for introduction accompanying a queen will prove safe in the hands of most beekeepers; but where I have any queen which I consider of special value I take one frame of honey and two of mostly emerging brood (as nearly so as is possible), and put them in a hive, together with two other frames containing mostly empty comb. This hive has window-screen tacked to the bottom, and a close-fitting cover at the top, making sure that no bee can either get in or escape till I am ready to open it for the little colony which will be formed by the emerging brood. Having the hive thus fixed, with the five frames properly spaced next to one side of the hive, the whole being in the honey-room next to the window, so there is no danger of the queen getting away if she should chance to fly, the cage containing her is opened, and she and all her accompanying bees are run in on the combs when the cover is put on and all made bee-proof. This hive is now placed over the bare frames of a populous colony, the heat from which is sufficient to cause

the brood to emerge the same as if a prime swarm had left it, as is done at swarming time. Six days later this hive is set on the stand it is desired to have it occupy, and a small entrance opened, when in a few days a nice little colony will be formed which can soon be built up into a good colony by giving three or four frames more of emerging brood. By this plan I have never lost a queen in an experience of over twenty years. But with only an ordinary queen the labor involved will more than offset the occasional loss which may occur with any of the many good plans of introduction which are before the public.

But I wish to say a few words regarding selling a plan for \$5.00. If the man in question was a reader of any of the bee literature now at the command of the public he should have remembered that he had received untold value from the many writers who have gone on before. It would seem that many—yes, very many—have so forgotten, for the one desire which is apparently taking possession of the hearts of many of the people seems to be to get all they can, by hook or crook, of the things of this world, no matter what becomes of their fellow-beings. I have prided myself in the thought that beekeepers as a class are not so selfish as many in other pursuits; but if this is so the man wishing to receive \$5.00 for information regarding how to introduce a queen must be an exception to the general rule. For nearly half a century I have profited by the many good things which have been freely given through the printed matter in our books and papers on bees; and should I not as freely give of whatever I may have wrought out as have those who have helped me?

Here is a thought I should like to leave with the readers of GLEANINGS. When a young couple start out on life's voyage they put all their energies together that a comfortable and happy home may be made. The husband does not try to defraud or take advantage of the wife, nor the wife the husband, but both work together to accomplish the same object—the blessedness of a comfortable home. Now, I wish to say that what is good for that family is good for the great family of beekeepers in this nation and in the world. Still further, what is good for the family is good for a State; what is good for a State is good for a nation; and what is good for a nation is good for the world; for we are all *brethren*.

GENERAL CORRESPONDENCE

NOTES OF THE SEASON

BY JAMES A. GREEN

The new power extractor, with friction drive, has proven very satisfactory, and I think the friction drive is much better for an extractor than gearing. The unfortunate thing this season has been that the extractor has had so little to do. Only once in my thirteen years' residence in Colorado have I seen a poorer honey season. Yet I have never known bees to be in better condition in the spring, nor the prospects for a good honey season to be better than this year. Truly beekeeping is an uncertain occupation. The producers of extracted honey have a little; but most of the comb-honey men in this part of the State have had practically nothing in the way of a crop. What little surplus my bees stored was almost entirely from sweet clover, alfalfa yielding almost nothing, and I believe this was generally true.

EUROPEAN FOUL BROOD OR POISONING?

The letter from Dr. E. F. Phillips, on page 615, expresses his belief that the loss of bees that has been so serious in this part of Colorado is due to European foul brood rather than to poisoning, as has been the general belief. While I do not doubt that Dr. Phillips may be correct in his diagnosis of European foul brood in the sample of brood sent him, he is certainly wrong in attributing our losses here to that cause.

I lost a number of colonies myself in 1912 in two of my apiaries. In the spring of 1913 I bought the remains of an apiary that had been reduced from over 200 colonies to less than 50, the outfit including a number of sets of brood-combs on which the bees had died. In none of the colonies that died was there any thing to indicate any disease of the brood further than the occasional case of American foul brood which is always with us. The only brood that died was what was chilled or starved for the lack of mature bees to care for it. The surviving colonies, moved to other localities, nearly all built up in good shape and gathered a good crop of honey in 1913. Most of the combs from the dead colonies were used for either brood or extracting combs, without transmitting disease thereby. The letter by James G. Brown, page 641, describes the situation very accurately as he has found it in Montrose County. In Mesa County our greatest loss was in 1912. After the losses of that

season, most of the beekeepers in the orchard districts near Grand Junction and eastward either quit or moved their bees elsewhere. It is rather unfortunate that enough remained to prevent a thorough demonstration of what an entire lack of bees would do to the orchardists.

The heading of Mr. Brown's article is misleading in calling this "A New Danger from Spraying." It is an old story with us. In fact, I wrote of it several years ago in GLEANINGS when I was the editor of one of its departments. It seems difficult to get some people to comprehend that there is any danger to the beekeeper from spraying except during fruit bloom. Only once have I ever known of much damage to bees through the spraying of fruit-trees before the blossoms had fallen, and that was a trifle compared to the losses we have had since from the poisoned spray falling on the blossoms of plants growing under or near the fruit-trees at the time of the later sprayings. One of the heaviest losers, Mr. John Wallace, has lately sent samples of brood from one of the depopulated colonies to Washington, and the report of the authorities was that no disease could be found.

PEAR-BLIGHT NOT TRACEABLE TO BEES.

I wish to corroborate the statements of L. V. Dix, page 641, in regard to pear-blight. I have raised pears for a number of years, and live in a district which ships hundreds of carloads of pears annually. I have had some serious attacks of pear-blight in my own trees, and have seen a great deal of it elsewhere, even to the destruction of whole orchards, but I have never seen the slightest indication that bees are in any way responsible for the spread of the disease. I have never seen bees working on blighted branches, nor ever seen on such branches any thing that it seemed to me would be attractive to bees. Pear-blight sometimes spreads at an alarming rate under some conditions, appearing to be governed mostly by weather conditions; but the cure of it is simple when properly done, and the man who cannot get rid of it is too careless to be a fruit-grower. The cure consists simply in cutting off all blighted branches at least a foot below any sign of infection, doing a careful and thorough job, and keeping tools and the cut stub disinfected by swabbing them with a 1-to-1000 solu-

tion of bichloride of mercury. Other disinfectants are sometimes recommended. A favorite one is kerosene; but until I hear of surgeons using kerosene to sterilize their instruments I should prefer to use what is universally recognized as the best thing for such purposes.

STERILIZING FOUL-BROOD HONEY; A WARNING.

The recent publication of experiments showing the degree of heat necessary to kill foul-brood germs, showing that boiling for a short time would do this, and the following discussions, some of which at least would convey to the inexperienced the impression that this would be a safe practice to follow, are, in my opinion, liable to work great harm. Undoubtedly honey from diseased colonies may be so disinfected that it may be fed without conveying disease. I have myself fed considerable such honey without bad results. But the practice is exceedingly risky, and of this I have also had ample experience. The last lot of such honey that I fed was handled with every precaution that experience and reasoning had taught me was necessary and desirable; yet a number of cases of foul brood could be distinctly traced to the feeding of this lot of honey. I will now tell you just what precautions I used, and I want to say to you that nothing less thorough should be even considered. First, the honey was considerably diluted before boiling. I consider this desirable for various reasons, of which I will mention only the one, that this makes it possible to boil a long time without making the honey too thick to handle. Second, the honey was boiled a long time, not simply brought to a boil, but kept boiling for over an hour. Third, the honey was removed from the kettle in which it had been boiled, and the kettle thoroughly washed out. This is necessary, because

some of the honey, in boiling and stirring, may have been left around the upper part of the kettle, where it would not get the necessary amount of heat. The next day the honey was again placed in the kettle, and again thoroughly boiled and stirred. This is in line with the practice of the canners of many articles of food, and the experience of bacteriologists, who have found that many spores and bacterial germs are much more certainly destroyed by two boilings, with a cooling period between, than by a single boiling, even if longer continued. Now, can you suggest any thing more that I ought to have done to this honey to make it safe? I believe that I am more careful in doing such work than the average beekeeper—much more so than some I know—yet I know that the feeding of this honey caused several cases of foul brood—just how many I do not know; but I feel sure that this experience cost me more than I ever saved by attempting to feed such honey. Never again for me! In my experience as bee-inspector I have come across cases where the feeding of honey from diseased colonies has had much worse results than it did with me. I do not know just why I failed on this occasion; but if I with my long experience with foul brood, dating back to twenty-five years ago, when I had a long siege of foul brood in Illinois, and exterminated it completely, could make such a failure as that, then I say to you that I believe it is a colossal mistake even to suggest to the inexperienced that it is ever advisable to feed such honey back to the bees, or, what amounts to the same thing, to feed any honey to bees that you are not absolutely sure is free from any chance of contagion; and *that* cannot be said of any honey bought in the open market.

Grand Junction, Colo.

COLONY ODOR OF BEES TRACEABLE TO THE QUEEN AND THE QUEEN ONLY

BY JAY SMITH

I have read with a great deal of interest the discussion concerning the odor of bees, and it seems the matter is far from being settled. That there is much concerning the odor theory that is unknown to us all, can not be doubted. Many of us have a thread of the truth, and we think we have the whole rope. I also have a thread, and I propose to hang on to it till some one else breaks it or gives me a stronger one to hang on to.

My theory on the scent question is this:

The queen gives the colony its individual odor. There may be other means which enable bees to recognize bees from another colony; but I believe the queen is the main factor. No one who has had experience with bees can for a moment doubt that the queen had a strong odor that is easily recognized by the bees. Many have, after handling the queen, while the swarm was in the air, had bees alight upon their hands and give the call to their comrades by fanning, indicating that they had found their

queen, when in reality the queen had not been on the hand for a minute or more.

In requeening last year I had a number of bees continually alighting upon my right hand. If shaken off they would soon return. At last I remembered that, in killing the old queens, I gave them a pinch between my thumb and finger, and it was this queen odor that attracted the bees. I smoked my finger thoroughly, and the bees ceased to return. Here was a pointer: *Smoke will destroy the queen odor*. Put your thumb on this spot, for we shall come back to it later. The experience that converted me to the theory that the queen gives the colony its individual odor came to me several years ago while requeening my apiary, and I have verified what I learned several times since.

One hot July day I had a queen I had killed in my hand, and I sat down under a tree to cool off. Out of idle curiosity I placed the dead queen in a large bunch of bees that were clustered on the outside of a hive. I did this to see if they would ball her. They did not, but clustered around her very much the same as they would do with their own queen. As there seemed to be nothing startling in this experiment I forgot the matter and went on with my work. Next morning I was surprised and chagrined to find in front of this hive a good double handful of dead bees. I was nonplused. I thought that possibly the bees from the hive from which I had taken the queen and killed her had smelled their queen and gone to her and started a rumpus with its attending evil results, much the same as might occur if two suffragettes wanted the same office. (I have nothing against the last-named person unless her malady takes on the militant form.) I saw no bees flying around that would suggest this theory, and the matter for the time being was a mystery. A year later I tried the same experiment. This time it was about sundown, and no bees flying. Next morning the ground for two feet in front of the hive was strewn with dead bees. I believe there was over a quart. The bees of the colony were extra yellow, and all the dead bees were the same. There was no doubt that the dead queen had caused the bees in this colony to fight among themselves. (I have tried this several times since with the same result.) Why did the bees fight each other? This is the reason: The bees on the outside of the hive clustered around the dead queen and acquired her odor. Later in the night, when they went into the hive, they were taken for bees of another colony, and killed.

Another point I have settled to my own satisfaction is that the queen odor is very strong, but is not lasting beyond a very few

minutes, and is easily removed from the bees. Now let us go back to the place in this article where, if you have followed my instructions, you still have your thumb. Why did the bees fail to alight upon my hand after I smoked it? Because the smoke destroyed the queen odor. Mr. Arthur C. Miller, why is your smoke method of queen introduction such a success? (Excuse me for butting in, but I am going to answer that for you.) Because the smoke destroys the queen odor of the colony; and the new queen, by coming in contact with the bees, imparts to them her odor before they have recovered from their demoralization.

Why will queenless bees readily unite with another colony? Because they have no queen odor. Why will bees coming in from the field be accepted in any hive they may happen to enter? Because they have been for some time in the open air, and the queen odor has left them. Why do bees usually recognize and object to robber bees? Because they come from a hive near by and have their queen odor still with them. A young worker bee out for her initial flight enters the wrong hive. She is seized, and a rigid examination and cross-questioning takes place. She is young and innocent, cannot be a robber, no harm intended; so, after being mauled, and having some hair pulled out, she may be allowed to pass on into the hive. They would have probably allowed her to pass without a word of suspicion, but they did not like that queen odor she brought with her. Possibly those that are admitted without an examination are those that were in the air longer, and lost more of their odor. Why are so many queens lost by the cage method of introduction? Because they cannot communicate their odor to the bees by coming in contact with them; and when released they are taken for a strange queen, and killed. Why do bees ball queens instead of stinging them? I don't know; but I have a suspicion that they wish to confine the queen odor and not allow it to penetrate the hive, thereby causing a riot as my dead queens did.

That bees also have the power to give off an odor is not doubted; but I believe they use it only when necessary, when fanning to call their mates of the hive, or upon like occasions.

I have used with perfect success for some years back the smoke method of introduction; but I always used tobacco smoke. I abandoned the plan, for I did not like to make the bees sick with the nauseating tobacco that God never intended should be used by man or beast except to their hurt. Thanks to Mr. Miller for telling us that good clean wood smoke will do as well.

Some have wondered why tobacco-smoked bees are so susceptible to robbers. It is because they are made sick by the fumes, and disgorge the honey they have in their

honey-sacs, which attracts robbers. I have noticed, after tobacco-smoking them, that the inside of the hive would be sticky with honey.

Vincennes, Ind.

SOME OBSERVATIONS ON RECENT REPORTS OF QUEEN INTRODUCING BY THE SMOKE METHOD

BY ARTHUR C. MILLER

Reports of the widely varying results by the new direct method of introducing queens naturally raise the question, why the wide difference?

A careful analysis of the articles suggests at least three distinct causes; first, confusing the new with the old smoke method; second, improper use of smoke; and, third, failure to grasp or follow the instructions, simple though they are.

The new method is like the old in only two factors—bees and smoke. The confining factor was entirely lacking in the old method, and failure was more frequent than success. Somebody a hundred years and more ago ran in some queens by smoke. Incidentally, about the same time it was found that when twenty-four hours were allowed to elapse between the removal of the old and introduction of the new queen, success was fairly well assured. From time to time during the century following, other persons tried the smoke method, only to drop it, and but two or three in all that time noting the twenty-four-hour factor.

Then arose a variation of the old smoke plan in which the new queen was compelled to fast for half an hour, more or less, and was then run in at night—a successful procedure in most instances, but time-consuming, and a bit troublesome in the night factor.

IMPORTANT REQUISITES OF THE NEW SMOKE METHOD.

Then came the new method, and in the originator's hands always successful, the rare exception merely proving the rule. Other persons also have been equally successful. The new method emphasizes the closing of the hive so neither the queen can escape nor the bees free the hive from the smoke. The confinement of both is important, and by the old smoke method neither was confined. Naturally, if a person has in mind the old way and tries it again the results will be as variable as always. If we are to introduce at any hour of the day we must temporarily prevent the queen's escape. If we are to create and sustain the desired and necessary condition of distress we must shut in the smoke and do it so

completely that the bees can get no relief until it is the operator's pleasure. This is not possible in cracked, warped, leaky, unpainted hives. And in hives of two or more chambers, or if much of the space is unoccupied, as, for example, a small nucleus in a full-sized body, smoke enough must be used so that the contained air will be so smoke-filled that its circulation will not afford relief.

Then the smoke must be of a suffocating nature; hence the instructions to get a cloud of "thick white smoke," and use just enough of it to get the bees into a heavy roar and then run in the queen and shut in the smoke and queen for about ten minutes.

At once somebody, "to make assurance doubly sure, gives them a good hard smoking." Now, a good hard smoking generally means a vigorous pumping of the bellows, getting up a strong hot fire, and the hot burning smoke produced thereby works very differently on the bees from the "thick white" sort. First, it irritates the bees often to a point of vicious attack on every thing, including each other. Second, it does not fill the hive with a suffocating cloud which will produce the desired distress. It seems strange that some veteran beekeepers are apparently quite ignorant of the effect on the bees of various sorts of smoke.

Some persons never can grasp and follow instructions; and the more simple they are, the wider the operator digresses from them. For example, I have only to cite the many failures to make so simple a thing as hard candy, the making of which every lively youngster is supposed to be able to do.

FAILURE TO FOLLOW METHODS PRESCRIBED, AND THE RESULTS.

Some persons are prone to make variations of any method to suit their preconceived notions before trying the method as given; and then on failing they lay it to the method and not to their innovations, which, likely as not, were tried out and discarded by the originator of the said method. This is very evident in reading the reports on the new introduction system, as well as on scores of other things pertaining to bee culture.



H. A. McLendon's apiary, Andalusia, Alabama. In reach of these bees are black and white tupelo, poplar, alder, ti-ti, gallberry, etc.

Not a few have mixed the introduction by the new method to queenless colonies with the suggested experiments with the method, in requeening without dequeening; and yet nearly as many have reported success in requeening without dequeening as have reported failure.

Bee culture met with almost as great a misfortune as good fortune when Langstroth introduced his hive and the book in which he described it, and the manipulations possible with it. The bee-world went manipulation mad, and has never gotten over it. Most of the wonders of bee-life described by Langstroth were overlooked so far as applying them to the art of bee culture is concerned. Hot on the heels of the appearance of Langstroth's hive came a host of others, and all sorts of claims and counter-claims, variations, inventions, new or revamped, fairly overwhelmed the bee-press, and each one added to the obscuration of the most important things in Langstroth's book.

Coincident with the publication of Langstroth's book was that of that great bee-master, Quinby, perhaps the greatest we have ever had. His book was packed from cover to cover with the art of understanding bees and their ways. Appliances were incidental to the work, not the work to the appliances. His description of bee actions, the why and when of sundry operations, the reasoning from effect back to cause, are marvels of bee-mastership. Later, learning of Langstroth's invention he was quick to

see its value, but he did not let it run away with him. No, he fitted it to his knowledge of the ways and needs of the bee and the beekeeper. Wherever one finds an old student and follower of Quinby, he finds a true bee-master. One cannot help wondering where commercial beekeeping would be to-day had Quinby's work been the text-book of the beekeeping world instead of Langstroth. Quinby unquestionably was the *father of commercial bee culture*. He did more with his simple appliances than many a "big" beekeeper of to-day does with all his implements and appliances. And he was able to do it because he studied the bees and their ways, and understood them. And those persons who took the pains to study his writings also learned to a marked degree to understand the bee.

But to-day it is not so. Every thing revolves about appliances and *their* manipulations. Very few beekeepers will carefully read a painstaking description of bee structure or bee behavior, and fewer still will grasp its importance or know how to use it. This fact is brought home strongly to those of us who address gatherings of beekeepers. After a careful talk on some phase of bee behavior and its application to bee culture, one is shocked by the total missing of the points by some of the listeners. Here and there will be one who has grasped the remarks, and questioning usually brings out the fact that such a one has been a student of some branch of applied science, or is trained in analysis.

I doubt not that many who read this will, in their championship for Langstroth, fail entirely to grasp the lesson I would teach. I would not detract one whit from the honor given to Langstroth, but I do want to point out what we have missed in not knowing more of the manner and method of Quinby.

To observe, to read, to grasp, to understand and apply, was what Quinby taught as no other man since has done; and such

method is what we need now, in all that relates to bee culture, be it introduction of queens or any other part of the art.

The new method of queen introduction is based on well-understood reactions of the bees to certain conditions, and it is good. Its failure in some hands is due to the operators not understanding the principle or the bees.

Providence, R. I., Nov. 6.

BEEKEEPING IN ALABAMA

BY H. A. M'LENDON

It is like a farmer endeavoring to farm without tools to keep bees without a journal. My apiary of a hundred colonies did well last season. Except for the extremely long drouth which, by the way, has never happened here before, my colonies would have averaged around 100 pounds of section honey. However, in spite of that they easily averaged 50 lbs. to the hive, which, I think, is a good average.

I am sending a picture of my three-year-old yard. So few people realize how great the industry could be made in southern Alabama, especially in Covington County. I started with about a dozen gums three years ago, with some little experience that I got while with my father, J. R. McLendon, on the farm in Montgomery County. In those days the surrounding beekeepers would meet several times during the year with well-filled baskets, and have a get-together bee-meeting, talking over bee culture, and exhibiting specimens of honey.

I prefer the ten-frame hive. My bees are of a mixed race, and it is more than interesting to note the difference in bees. Even the mixed Italians show a great superiority

over the common strain. We are surrounded here by the Conecuh River Swamp, Bay Branch Stream, the five runs, and various branches. In fact, I know of no better location for a dozen or more apiaries than southern Alabama, where we have black and white tupelo, gum, poplar, alder, ti-ti, gallberry, and various other plants which grow honey in abundance.

The flow of the honey-dew is abundantly spread over leaves of the various trees; and the hum of the bees, as we sit under our own vine and fig-tree in the spring of the year makes one feel as if the glory of God rests with us bounteously.

What has become of the old-time beekeeper? From observation I think the industry is more neglected in this State than in any other in the Union. We have no bee inspector nor bee organization for the State. Cannot some plan be suggested that will wake up beekeepers of our State to the realization that we are sleeping, and losing great things in bee culture by not being organized?

Andalusia, Ala.

THE ALEXANDER METHOD OF INCREASE

Some Discrepancies that Confuse Beginners and Veterans Alike

BY A. SWAHN

Dr. C. C. Miller:—I am taking up beekeeping with very much interest, and have your book, also every other book of note on the subject. I have made a close study of the subject, and the more I study and practice the better I like it. I find, however, a few points which are very misleading to an amateur like myself, and should like some light on the subject. Please refer to page 366 of the last issue of A B C and X Y Z of Bee Culture in a note from you commenting on the method of increase employed

by the late E. W. Alexander. This note makes the whole subject very misleading, as it is without an explanation. This leads one to come to several conclusions—either Mr. Alexander was not a successful beekeeper or he has misrepresented his methods, as you say, "What successful beekeeper uses it?" I wish you would answer this through the pages of GLEANINGS.

If Mr. Alexander's method of increase is too rapid for good results I cannot understand your article in your own book, page

35, where you state that you made an increase of 164 per cent on a white-clover pasture only. After reading all this I am simply up against it, and can get no head nor tail to the whole business. Such contradictory articles should not be written without full explanations, in order to make a work any good to an amateur. I shall thank you very much for some light on this subject.

Ellsworth, Wis.

[Dr. Miller sends the foregoing to us with his reply.]

Don't be discouraged if at first there are some things not entirely clear of comprehension in the literature of beekeeping. It's a study, and by no means a superficial one. When you studied arithmetic or grammar, more than once you came upon things difficult to grasp, and you were glad to apply for help to "Teacher." Why expect beekeeping to be so different from other studies? And please don't expect too much in the way of "full explanations" in connection with every thing written about bee culture. If every thing were so fully detailed that the beginner could not possibly misunderstand, a year later he would complain at having the columns lumbered up with unnecessary material. Moreover, in a text-book a misunderstanding often arises because a detached item is taken without full acquaintance with the rest of the book.

Having said all this, let me hasten to add that there are (probably always will be) discrepancies and contradictions among the writings of beekeepers. Difference in localities and conditions lead to difference in views. Besides, beekeepers are human, and so may err in their observations or conclusions.

Now for the thing you say you are up against. Mr. Alexander divides before the clover harvest, and says, "I find I can get nearly twice the amount of surplus" by thus dividing. In the footnote I say, "If I should follow the plan it would only be at a loss in the honey crop." In thus saying I do not accuse Mr. Alexander of being unsuccessful, or as misrepresenting. He was a successful beekeeper of the highest integrity. But his situation was one out of a thousand. His bees had the range of 50,000 acres of buckwheat. His late flow was his chief flow, if I am not mistaken. If he divided a colony before white clover he could have at the beginning of buckwheat two colonies, each as strong as would have been the one if left undivided. Clearly that should double his buckwheat crop; and even if his clover crop were lessened by dividing,

his total crop might easily be "nearly twice" what it would be without the dividing.

My late flow is small compared with the early flow. If I get a colony to its highest strength by the beginning of white clover I am doing well. If I divide, the yield from clover of the two divided parts will be so much less than the undivided colony would give that no increase of fall flow would make up for it. So if I should divide "it would only be at a loss in the honey crop."

It may be well to explain that the thing I think especially misleading on the page mentioned is the statement that you can divide so that "you can have two good strong colonies in the place of one ready to commence work on your clover harvest." On the face of it, what can the beginner understand but that with the proper management he can, by dividing, double his white-clover crop? Not only do I not believe that it can be doubled in other locations, but I do not believe it can be at all *increased* in one place in a thousand. Of course, I may be mistaken in my belief; but if I am correct in that belief, such a statement should not stand in the A B C and X Y Z without some other warning than the protest in that footnote. If the author of that book thinks I am off in this matter, I'll change the question asked in the footnote, and say, "What successful man doubles his white-clover crop by dividing his colonies before the white-clover harvest?" If he thinks there's any unfairness in that question, let him please answer this: "What successful man (or unsuccessful) increases his white-clover crop each year by dividing his colonies before the white-clover harvest?" Names, please. Two will elicit my wonder; five, a handsome apology.

You seem to see inconsistency in my thinking that I could increase 100 per cent only at a loss in the honey crop, and then make an increase of 164 per cent myself. Bless your heart, I've made a good deal bigger increase than that. But I didn't increase the honey crop by it—didn't expect to. I increased bees, not honey; and when I increased 164 per cent I didn't get as much honey as if I had increased less or not at all.

Here's the whole thing in a nut-shell: I believe that where the early harvest is the chief one (and that probably covers the most of the ground) the less increase the more honey; but if the late crop is sufficient, early doubling may increase the total harvest.

Marengo, Ill.

C. C. MILLER.

[The Alexander method, when it first came out, received a great deal of favorable



Summer home and apiary of S. George Stevens, Duluth, Minn.

comment; but, as Dr. Miller says, we must take into consideration that his (Alexander's) main honey-flow was not from clover but from buckwheat, goldenrod, and asters. His method of increase is all right; but the

time to apply is all wrong for most localities in the North. Dr. Miller's points are so well taken that we shall omit the time when, as given by Alexander, from the next edition.—Ed.]

A WINTER CASE HAVING A LARGE EMPTY SPACE BELOW THE BEES

BY S. GEO. STEVENS

Having twenty hives of bees to prepare for winter in the fall of 1912, and no place other than their summer stands available, I was up against the real question in earnest. I had read very carefully all the articles in GLEANINGS on the subject, showing that packed hives are the only thing, and, on the other hand, that the thin black hive with large entrance is the only way, etc. As I sat on an empty hive debating the question in trying to decide what was best for my needs, the happy thought struck me, "I'll do both," and so I did, in the most simple manner.

Many times have I watched the bees fanning at one end of a horizontal entrance, forcing the air outward while fresh air was



A closer view of the apiary of S. George Stevens.



A NEW TYPE OF WINTER CASE.

Below the packed hive is an empty box having a vertical entrance instead of the usual horizontal one, and a series of slots communicating with the hive above.

drawn in at the opposite end; and I thought how unnatural it all was compared to the vertical slot in a tree, where natural circulation of air invariably exists by reason of the warmer air going out at the upper end of the slot, and the cooler entering the lower end, thus saving to the bees the trouble of fanning.

This thought first led me to the vertical tandem hive, the lower one of which is single-walled, empty, and provided with the very necessary vertically disposed entrance which always insures at least some circulation of air. This lower hive is also painted black, and designed to absorb all the heat possible from the sun's rays. The vertical entrance extends upward somewhat beyond the center of the hive, performing not only the function of air circulation, but that of providing means of avoiding complete "blockation" by snow, which is no small item.

Upon this empty hive is placed a large simple plain box, about three or four inches larger all around than a hive, and having a bottom to cover completely the empty hive below.

In this bottom adjacent either side, and so positioned as to occur within the walls of the hives both below and above, is formed a long narrow slot or beeway, these slots being preferably just the proper width for a bee to pass through comfortably.

The hive containing the colony of bees is placed within the large box directly over the empty hive below, and the space all around the hive within the box is filled with any convenient form of packing, such as

shavings, dried leaves, or the like, there being sufficient space to put four or five inches of the packing directly above or on top of the hive. The cover may be of any desired form—preferably a telescopic water-tight wooden one.

Thus we have our colony of bees in a comfortable packed hive with a positive supply of fresh air entering the hive upon either side of the colony, and not up against the lowermost bees in the cluster, and also providing winter quarters with all the benefits and advantages of

the single-walled hive for absorbing and radiating the heat of the sun to the bees, without any of the disadvantages that the single-walled hive otherwise carries.

The circulation of air within the hive invariably changes once a day on account of the heat of the sun being on one side of



C. Woodward, Wyandotte, Mich., standing by a colony of bees which, during 1913, filled 10 supers of 24 sections each, without swarming.

the hive or radiating chamber part of the day, and shifting to the other side during the other half of the day; that is, of course, provided the hives stand north and south, thus reversing the air currents, as is evident.

Twenty colonies wintered in this manner came through in most beautiful shape; in fact, one colony of only three frames ap-

peared as strong as when put in in the fall. Seventeen colonies were again wintered in the same manner during the winter of 1913, and came through in fine order, even though in many cases their stores were so light as to cause the starvation of the entire colony after April 15.

Duluth, Minn., Aug. 27.

THE BRITISH EXPERTS

BY ONE OF THEM

The certificates of proficiency in beekeeping awarded by the British Beekeepers' Association are more and more essential as the county associations grow warm to their work and the county councils decide to appoint lecturers, demonstrators, and inspectors. It may be of interest to our American friends to hear of the three grades of expert certified in this country, and a little of the test which discovers them.

At the lowest rung is the third-class expert. He has to satisfy the examiner in the first place as to his ability to manipulate bees. Under the examiner's eye he opens a hive, searches for and finds the queen, replaces the frames in their proper order, and makes the hive snug. Until quite lately the examinee had also to drive the bees from a skep or fixed-frame box hive, getting all the bees out and securing the queen as she ascends with the crowd. Undoubtedly this will be a useful accomplishment for many years to come, and it is, perhaps, a pity that the test for it has been dropped.

The manipulation over, the third-class examinee has a talk of more than an hour's duration with the examiner on the topics of apparatus and their use, management, the treatment of disease, and other questions of practical bee culture. If he has proved himself a manipulator, and comes out of this talk with credit, he gets his third-class certificate.

A few months later he sits for the second-class examination. This consists of two papers—A, practical; B, scientific. All candidates sit on the same day; but in their own homes or places contiguous thereto, a responsible person being appointed in each case as "vigilator," to sit in the room and see that the rules of the association are observed. Two and a half hours' hard writing are needed for the answering of each paper. The candidate will have read Cowan's "Honey-bee," the first volume (scientific) of Cheshire and Cowan and Herrod respectively on wax-rendering, preparation of produce, and exhibiting.

The papers of a recent second-class ex-

amination had five questions each. In the practical, candidates had to deal with spring work, wiring frames, the sources and qualities of honey, all the details of rendering and purifying wax, and were asked to give a justification of the maxim, "keep your stocks strong." In the scientific, the examiner wanted a drawing and description of each leg of a bee, a scientific placing of *Apis mellifica* in the order of Annulæ, an enumeration and short description of the trophi, something about the fertilization of the queen and her eggs, and an illustrated account of pollination of flowers by the bees.

For the first-class examination the candidate must have a still more exact knowledge of Cowan's book, and must show "a satisfactory acquaintance with the best literature on bees and beekeeping." He can scarcely expect to pass without a good reading, for example, of the "A B C and X Y Z," and he must expect some questions on the most up-to-date methods of American beekeeping. He may be asked, in the light of this complete knowledge, to say something about queen-rearing, the prominent differences between American and British methods for securing honey, the prevention of excessive swarming, the pitfalls that beset a novice, and how to avoid them; the duties of a judge, and so on. In the scientific paper he may have to draw the microscopic details of an antenna, and allocate the various discoveries of smell organs, and so on to Swammerdam, Schiemenz, and the others. He must know equally well about the tongue, spermatheca, the nervous system, the tracheæ, the ventricles, and the rest, and be able to explain scientifically hygienic details within the control of the beekeeper. And perhaps he will be asked to tell just what we owe to the discoveries of Mehring, Langstroth, Hruschka, Huber, and others. In other words, his paper knowledge must be somewhat extensive and peculiar.

One is not quite a first-class expert, even when he has answered satisfactorily this final paper. It has yet to be proved that

the candidate can give out orally that which he knows. A day is arranged for his attendance before the Board of Examiners. A paper is handed him with a topic written upon it. He is given five minutes for "think ing over the topic and outline notes." Then he re-enters the room and gives a lecture "extending to a quar- ter of an hour."

I have written these notes on the British system, without know- ing what counterpart it has in America. Un- doubtedly the reading- up for these examina- tions is of great use to the beekeeper, whether he takes them all or not. It gives an incentive for a closer study than most of us would take without it, and

a profundity to the pleasures of beekeeping that the mere practice of rule-of-thumb methods can never give.

Sheepscombe, Gloucestershire, Eng.



An outdoor colony weighing 30 pounds—bees, combs, and all.

THE CAPTURE OF AN OUTDOOR COLONY

BY T. DWIGHT WHITMAN

As I was going to town on the street-car with part of a hive on July 14, 1913, a gentleman sitting on the other side of the aisle asked me if I was a beekeeper; and on

my replying that I was he told me that there was a colony of bees in a small tree opposite his residence that had been there to his knowledge for three weeks, and had



Getting ready to transfer the colony into a hive.

built a piece of comb as large as a soup-plate. Many times I have been told of a fine swarm of bees at a certain place, and on going there found them to be hornets; but he was so positive that they were bees that I went out July 16, and found that the bees had located in a small alder-tree about four feet from the cement sidewalk, and were busy at work bringing in honey and pollen. The comb was attached to the branches in a number of pieces, and there were several hatched queen-cells in sight. The bees

and comb weighed 30 pounds. They were remarkably gentle bees, and never offered to sting while I was cutting off the different branches or photographing them. I put them in a box with a wire-screen cover, and brought them home on the street-car.

I put a box with a West cell-protector leading into the box in the tree; and when I went back in the evening I had caught most of the stray bees; and what few were still out I had no trouble in catching with my fingers and putting in the box.

The amount of work that they had done, and the hatching of the queen-cells, was remarkable to me, as we had not been having either warm or fine weather, it having been as follows: two fine days; two rainy days; one fine day; one dull and windy; one showers during the day; two fine; one rainy; one fine; one dull; one dull with rain in evening; two fine days; two days with showers; two dull days preceding the day I got them.

Fig. 1 shows one side of the colony with a hatched queen-cell near the lower edge about the center of the colony; No. 2 the other side of the colony, with queen-cells between the sections of comb. No. 3 shows the colony ready to shake in front of their new home; No. 4, the bees shaken off and safely housed; No. 5, ready to cut out the comb and tie in frames; Nos. 6 and 7, taken one week later; No. 6, looking for the queen; No. 7, there she is!

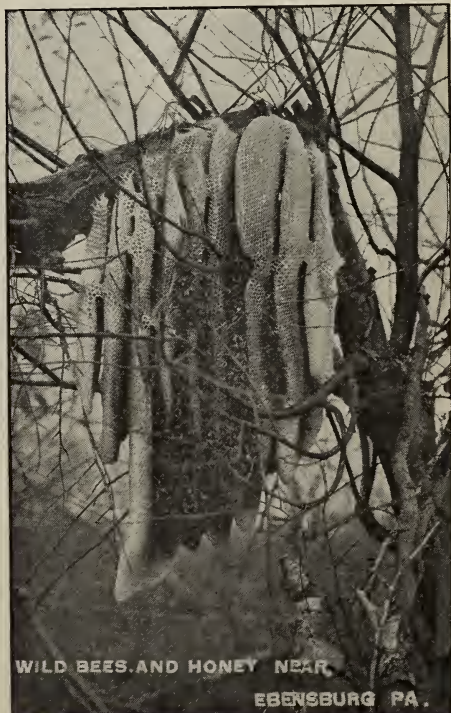
The photos were taken by myself by treading on the camera bulb attached to a long rubber tube. Note artistic pose.

Tacoma, Wash., Aug. 11.



The job completed, and the bees safe for winter.

[Prof. H. A. Surface sent us a very fine photograph of an outdoor colony last summer. A reproduction of it appears herewith, showing the extensive comb-building for a colony living out in the open.—Ed.]



WILD BEES AND HONEY NEAR
EBENSBURG PA.

An outdoor colony having an unusual amount of comb. Sent by Prof. H. A. Surface, Harrisburg, Pa.
Photographed by Deek Lane.



Apiary of Anna Sommer, Ronne, Bornhelm, Denmark.

AN APIARY IN DENMARK

BY ANNA SOMMER

I am sending you a picture of my home apiary. It is only a small affair, but I have an outyard containing the same number of colonies. Large apiaries are not found on our island. We have a profusion of flowers in the summer, but the climate is so change-

able that the yield of nectar is quite uncertain.

This picture was taken a few days before Christmas. We always winter out of doors here. The corner of the honey-house shows at the right.

Ronne, Bornhelm, Denmark.

FEEDING BEES WHEN IN WINTER QUARTERS, WITHOUT CANDY

A Practical, Simple, and Reliable Plan

T. P. CLARE

Can it be done successfully? the beginner asks. Yes, as successfully as in September, though a little more trouble. First, as to the feed. As the bees cannot fly, and so evaporate the excess of water, as in September, we save them this trouble by making the syrup thick and feeding it warm. A food that gives perfect results is made by bringing *one* measure of water to the boiling-point in a suitable vessel. Then stir in *three* measures of granulated sugar. When thoroughly dissolved (near the boiling-point) remove the vessel from the stove and stir in *one* measure of honey (the poorest

you have will do). The honey will keep the thick syrup from graining as it otherwise would. Now, to get this thick feed stored in the central combs, just where it is needed, make a rim of boards, about four inches wide, as large as your hive (an empty section case or super will do). Heat a couple of bricks, and put them inside the super on an extra bottom-board. For a feeder use a baking-pan, a little smaller than the inside of the super. Place this on the hot brick and pour warm syrup into the pan. Spread over this a piece of cheese-cloth, some bits of comb, a handful of shavings or excelsior

(anything that will keep the bees from sinking in the feed). Now place the hive containing the colony to be fed upon the prepared super. The warmth and scent of the feed will lead the bees to loosen and lengthen their cluster to the feed, and in a few hours the contents of the pan will be transferred to the brood-nest, and the bees will settle down for their long winter sleep.

For the benefit of beginners I will add, while the bees are feeding keep the cellar dark to prevent bees flying out. But what about those that are wintered outside, whose case is doubtful? Any pleasant calm day remove the top packing; raise the burlap that is over the bees; place two pieces of lath across the top of the frames, and upon these invert a 10-lb. pail of grained honey. Drop the burlap in front of the pail; place more burlap and soft paper behind and at the sides of the pail to protect the bees. Fill in the chaff, put on the cover, and your bees are safe.

Last fall, in packing I found several stocks that had been breeding after they had been fed up for winter, and that were near the danger line. As we had plenty of sweet-clover honey in 5 and 10 lb. pails, and I had experimented in this way the winter before, I fed up the questionable ones as I have described, and *every one* wintered finely, though it was the coldest winter we have had for years. When combs of honey have not been reserved, or when the supply of these is exhausted, I have found that granulated honey and warm packing will fit the bees to answer the roll-call on the first of May.

Call this "emergency feeding," Mr. Editor—not to be desired, I fully grant, but it is much to be preferred to empty hives next spring. Bees around Toronto have not gathered their winter stores this season, and the zeal of many has got cold.

Toronto, Canada.

SPRAYING VERSUS BEES

BY C. W. WOODWORTH

Ever since spraying has been recommended for the prevention of the codling-moth injury there has been more or less insistence upon the filling of the blossom-cup of the apple with the spray; and from the first there has been more or less fear expressed as to danger that might follow from the use of the poison. By carefully conducted tests and experiments this was early allayed so far as concerns the danger from the consumption of the fruit; but there remains a very prevalent belief that this practice is fatal to bees, and liable to poison people consuming honey if the spray is applied before the blossoms have ceased to produce nectar. For this reason the published directions for spraying almost universally insist on the delay of spraying till the petals have fallen, and in several States the spraying of trees in bloom is a penal offense. It appears that this general fear is not based on experimental data.

We pointed out ten years ago that in the Pajaro Valley the fruit that sets may be wholly that from the first blossoms, and that this fruit may be already as large as cherries before the larger part of the blossoms fall, and that, to poison the blossom-cups of the fruit, the spray would have to be applied before full bloom. It was not necessary at that time to take up the question of the possible danger to bees, since the most satisfactory spraying practice was found not to require early treatment. Recent

studies by Mr. W. H. Volek, of this Department, have shown the desirability of a spray during blossoming for other purposes, and thus raises this question, though there have never been many bees in the Valley.

A colony was shipped from the University apiary at Berkeley to Watsonville, and placed in a tree in the center of a forty-acre apple-orchard just before spraying, with an unusually heavy dose of arsenicals as the trees were just coming into full bloom. The colony was selected by Mr. R. W. Brown, assistant in apiculture, and carefully examined by him before and after shipment to Watsonville, and he was unable to find any evidence of the poisoning of bees or brood. On the return trip the hive was kept closed until enough dead bees had accumulated for analysis, and samples of pollen and of newly stored honey were also analyzed by Mr. G. P. Gray, with negative results in the case of the latter. An amount of arsenic was recovered from the dead bees, nearly approaching a toxic dose—all clearly showing that, even under the severe conditions of the excessive dose, and a locality where practically all the food was from sprayed trees, there was no appreciable danger to man from poisoned honey.

In order to determine more definitely the danger to adult bees, a large number of the dead bees were dissected by my assistant, Mr. E. Ralph Ong, and the internal organs analyzed by Mr. Gray, showing that none of

the arsenic present was inside the body of the bees. It appears, therefore, that in spraying, while the outside of the body of the bee may have received enough arsenic to cause the death of the insect, it remained on the outside, and therefore could have had no more effect than the sprayer experiences from the spray that falls on the coat.

We feel justified, from the results secured in these experiments, in holding that there is no danger to bees from spraying operations with insoluble arsenicals; and that reports to the contrary, of extensive losses

to beekeepers, are without foundation. The recent account of losses in Colorado (Foster in GLEANINGS, Oct. 15, 1914, p. 798) could not have been due to arsenical poisoning because the symptoms described are entirely different. We have experimented very extensively with arsenical poisoning, with a large variety of insects, and have never, in any case, produced swelling; nor have poisoned insects ever shown the kind of activity that bloated bees always exhibit, and which was referred to in the same article.

University of California, Oct. 21.

SHAKING BEES FROM COMBS FOR EXTRACTING

BY GEORGE SHIBER

A phase that has grown monotonous with me this fall is, "We have no honey for sale. This has been the poorest season I ever had—a complete failure." So day after day my old customers come on foot, in buggies, and automobiles for honey; and to all I have to pass out the distasteful phrase. I am hoping that I shall not have to say it next year; for I have had practice enough repeating it this year; and—say! I have been having experience in getting mail orders with checks enclosed, and having to return them.

I am learning something new about bee-keeping this year. The problem in the past was, how to get the buyers; now it is how to explain the failure; so, as I say, I hope I can lay the phrase permanently away next season. We have had plenty of rain late this past season, so next year may make good again as usual.

The above was not what I intended to write about when I sat down (it's the truth, though); but about that article by "Outlaw," page 864, Nov. 1, on taking off honey and extracting; it is good, and there are many good practical points in it. The most satisfactory way of taking off honey, and extracting too, is the way which has the least number of false motions and fussing. In taking off honey I use a wheelbarrow that holds two twelve-frame bodies; and when full I run them into the shop and then get another load, and so on. I never use a broom or brush of any kind. I used to, but found the brush caused unnecessary work. I simply take off the cover, using plenty of smoke; put a cloth over combs that rolls at the edge as fast as the combs are taken out. Shake each comb down in front of the entrance. This shaking bees off from heavy combs is hard work unless we do it just right; but if done properly the weight of the comb will do the work itself.

How is it done? By taking hold of the top-bars with both hands in the usual way, and letting the comb drop, pushing it downward with the hands; then aim to stop the comb within six or eight inches of the ground in front of the entrance. When starting to stop the comb I push down with one hand and raise the comb a little with the other, with a slight jerk; this is done very quickly without any fussing or foolishness. No, it does not clean all of the bees from the comb. They will soon fly to the screen window in the shop, so they are out of the way. When the extracting is done a new colony can be made of the cluster of bees. I used to use a broom, and brush each comb; but I quit it some time ago because it was extra work that I got no pay for.

The Outlaw's remarks about taking care of empty combs from the extractor are good. I do not know of any thing that will "tear one's nerves to shreds" like being a little careless in handling combs. For instance, in the hurry, if a few combs are left against the wall or the floor, and then more combs from the extractor, these piled against them, soon they commence to slide, or a foot goes through one, and they keep piling up, and so general misery and hatred of extracting follow. The rule I observe is to put empty combs into hive-bodies as soon as taken from the extractor when the body is full, while the combs are spinning in the machine. This is piled up at the side of the shop, and another empty body taken to hold more combs. We always find great satisfaction in keeping every thing picked up and finished as we go along, and in that way we can accomplish more with less labor than to let things slip and slide around "every which way."

Randolph, N. Y.

A PAIR OF BOSSES

BY LEWIS P. TANTON

This picture shows the "boss of the house," Miss Ellinor, age 19 months, perched on the "boss hive" of this latitude. She is in good humor, and enjoying the situation; but the strong sun playing on one side blinks the eye to make her look otherwise.

My champion hive (her pedestal) is packed full of brood and honey, and has

two comb-honey supers of 24 sections each, and one extracting-super, all full and ready to remove. Besides this I have already taken off one 24-section super and one extracting-super.

From this hive I took a strong three-frame nucleus early in the season. This nucleus is seen in the rear, to the right, in the form of a three-story hive. From this young colony I have taken one 24-section super almost full and formed another nucleus hive (not visible in this picture) which is now full of brood and honey, and will make a strong hive for winter. On the brood-chamber, which is packed close with brood and honey, is a 48-section super, full and ready to be removed, and the top extracting-super will soon be filled.

The parent colony swarmed once; but I returned the swarm to its home, where they settled down contentedly. I also took two or three frames of brood from it to help other hives, and have a fourth nucleus with a queen from her stock, also a vigorous colony. What promises to be a very plentiful fall honey-flow is just commencing, and I anticipate another super or more of extracted honey from this colony. I do not think you can find a colony as far north as this that could enter into competition with it.

These bees are very gentle. The children play around them with safety, and I frequently handle them without smoke or veil, and without stings. They are quite yellow, some of them almost four-banded.

Charlottetown, P. E. Island, Aug. 24.



Ellinor Tanton standing on the champion hive in the apiary.

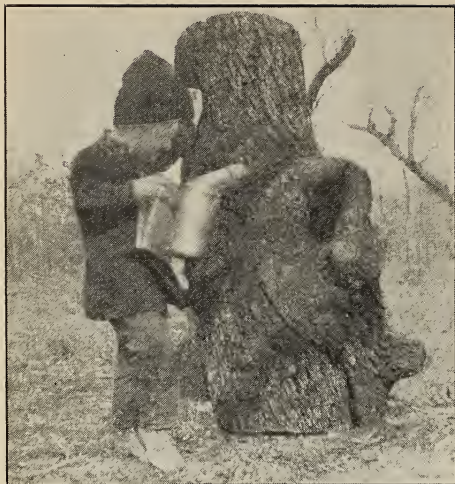
MARKING HIVES; HIVE RECORDS

BY DR. L. A. SIMMON

First a notebook is indispensable. Six strips of tin are necessary, $1\frac{1}{2}$ inches wide and 5 long, each one painted a different color—red, white, blue, black, green, yellow. Both sides are painted. A small hole is punched $\frac{1}{2}$ inch from one end of each strip. They are now bunched on one nail, and all placed the same way. As the tin is concave on one side where the nail is driven through, the metal projecting around the hole on the side opposite this projection fits into the concavity in the next strip, permitting any one of the strips to turn in either direction, and yet with enough friction to hold it in any position in which it is placed.

The method of using is as follows: Fasten the bunch to the hive by driving a small nail through the holes in the end of the bunch. They may be fastened to the margin of the cover or on the center of the end or side. They should be arranged so that when one is walking between two rows of hives both sides can be read.

Since red is the danger-signal I use this to indicate "something wrong here." Approaching a hive with this red signal up, if I cannot remember the conditions when last examined I refer to the page of my notebook corresponding to the number of the hive. There I find a brief record of condi-



Section of a tree containing a colony of bees which A. Rowley transferred to a modern hive.

tions. All hives are numbered, and each hive is given a page or two in the notebook corresponding to the number of the hive. Thus the red flag and notebook take care of a great many conditions for which it would be impractical to have a special signal.

There are five colors left. Each one may be used to indicate some important condition. For example, white for me means "O. K." Blue means "queen-cells;" green, "recently swarmed;" yellow, "a prime swarm;" black, "queenless."

The combination of black and white turned up from the bunch in the form of a Y means "ready for supers." Black and red combined mean "supers ready to come off;" red and white mean "out of stores;" red and green mean "light in honey;" red and white signify "dwindling." Any number of combinations may be made.

This system has, to recommend it, that it is inexpensive, easy of application, convenient in use, everlasting, and unaffected by weather. After learning the signals the beekeeper can walk up and down his apiary

and read at a glance the exact conditions of every hive.

With the intelligent use of a pocket notebook this system relieves the mind of carrying or trying to carry the individual conditions of each hive.

Auburndale, Fla.

TWO COLONIES TRANSFERRED FROM TREES

BY A. ROWLEY

I am sending three snap shots taken while we were transferring a colony from a bee-tree to modern quarters.

I used to keep a few colonies as a hobby in Ontario, Can., and on moving here I set about finding some more. Last spring I secured two colonies from trees.

Lexington, Tex., March 15.



The log split open, showing the combs, the outside one of which contains a little brood.



The bees safe in their new home; the four-year-old boy hunting for the queen.

SOME EXPERIENCES OF THE SEASON OF 1914

The Man Whose Honey Gave Him a Panic

BY OREL L. HERSHISER

Originally Read before the Convention of the Ontario Beekeepers' Association

Once there was a beeman who got a bumper crop of honey and then some. At first he was happy, and had visions of wealth; but when he read in the papers that nearly all who kept bees had bumper crops also, some much larger than his, and that the "land flowed with honey" as well as with "milk," he was alarmed. He cried, "This is more sweetness than the people can eat. Surely this business has been over-boomed, for beemen have suddenly become as the sands of the sea in number, and honey has deluged the land. Our hives and bees will avail us nothing henceforth." Straightway he "went to it" and sold his bumper crop for a sum not greater than he had received for meager crops in other years; for many other beemen thought likewise. Honey was fairly thrown at the buyer, and was easy of purchase, for the offerings were many and great.

But the following season was a lean one; and as the last prospect for a honey crop faded away, and orders had to be refused, he soliloquized: "Last season I received little better than a song for my bumper crop, and demoralized my market; and this year I have little to sell. What little I have is 'going some.' Bees and beemen do not seem too numerous, and honey especially is not too plentiful. The honey flood has subsided, and I calculate that last season's and this season's crops amount to not more than an average for the two seasons. If I had carried over to this season such part of last season's crop as could not be sold at a fair price, I might have realized handsomely for all of it, and be 'bones and beans' ahead. But I let that bountiful gift of nature slip away from me for nearly naught. *Good night.*"

Moral:—Don't get a panic when you get a good crop of honey, and sacrifice it for a trifle, but "bide a wee" until supply and demand are normal.

The above fable illustrates one experience common to many beekeepers for the season of 1913 and 1914. But a few who do not attribute the bumper crop of 1913 especially to the efforts of colleges and beekeepers' associations to *train* thoroughly those who wish to engage in beekeeping, but, rather, as a phenomenon not likely to recur the second consecutive season, are enjoying the average returns from their apiarian investments by

reason of the honey carried over from last season.

THE DISASTROUS EFFECT OF AN UNUSUAL SNOWSTORM.

To the north of an apiary, and about 150 feet distant, is a railroad embankment about twelve feet high, which would seem to furnish ample protection from wind and drifting snow from that direction. Some 700 feet to the west are houses and trees, and immediately to the west is the honey-house and other artificial windbreaks. Along the south side is a windbreak of old hives five feet high.

During the latter part of February last we experienced a fall of several inches of dry light snow accompanied by a brisk northwest wind that, notwithstanding the supposed protection, drifted the snow, not only around the hives, but into them, filling every space between and to the very top of the combs, and enveloping the cluster of bees. When first looked over, four or five days after the storm, 75 colonies out of the 108 contained live bees ranging from a handful up to strong colonies. Very soon they dwindled until but 43 colonies remained, nearly all of which eventually became reduced to what would amount to from very weak to strong nuclei, and 13 of these eventually became queenless. The blanketing of snow seemed to take the vitality out of those colonies that survived the immediate effects of the severe chilling. Colonies that, on first examination, seemed amply strong soon dwindled badly, and the loss of so many queens out of the 43 surviving colonies is attributed to the devitalizing effects of the severe chilling.

The colonies were normally strong in the fall when prepared for winter. About one third of them were in double-walled hives, well packed above. A part of the remainder were in single-walled hives in individual packing-cases; a few in packing-cases containing four colonies each; and four colonies in eight-frame single-walled hives, drawn into a cluster, two facing the same direction, and just opposite the other two, and each packed with an eight-frame hive-body full of packing. There was no noticeable difference in the wintering by the various modes of preparation except that three out of the four eight-frame hives came out much stronger than any of the

others, which may have been due to their location near the honey-house and being better protected from the wind.

Another apiary of chaff hives on the south edge of a bush of tall second-growth timber, with a large neglected orchard immediately to the south, wintered 101 strong colonies out of 105. Another apiary, similarly situated, wintered with a slightly greater percentage of loss. About one-third of the colonies in this apiary were in double-walled hives, and the other two-thirds were in single-walled hives and packed in clusters of four each.

It is evident that hills and embankments do not always furnish proper protection from wind and snow; that the effectiveness of artificial windbreaks may be often overestimated, and that they often induce strong currents of air where least expected, as is shown by snowdrifts and clean wind-swept ground in apparently well-protected places.

Experience proves that fairly dense orchards or second-growth bush furnish the ideal protection from wind and snowdrifts, and that hills and embankments cannot be depended upon.

WHAT SIZE OF ENTRANCE, IF ANY, IS NECESSARY OR BEST FOR OUTDOOR WINTERING?

Various sizes of entrances to hives for successful wintering have been advocated. Those advocating the sealed cover, so called, want a large entrance or the full summer entrance. Those advocating absorbents immediately above the cluster seem inclined to the belief that it is desirable to have the entrance more or less contracted to insure best wintering. In all cases ample entrance for the bees to fly on warm days is advocated.

Contrary to anything I have heard or read on the subject, and at variance with any previous experience, a small apiary came under my observation last spring where the entrances to the hives had been closed with fly-screen. This was done to exclude the mice, but it also *included* the bees. In addition to the protection from mice furnished by the fly-screen, protection from wind from the west was provided by leaning a broad board up in front of the entrances of the hives facing westward. The hives were packed in the usual manner, in cases, except that one case contained eight colonies. They were unpacked late in April after the weather had been warm enough for flights on several days.

The remarkable thing about this occurrence was that every colony in the apiary (fifteen, I believe) was alive, and nearly all in excellent condition. That all the colonies were not overstrong was shown by the fact

that one was wintered on four L. frames, and another on five. One of the stronger colonies had the entrance closed with dead bees from within, in addition to the fly-screen, in such manner as practically to exclude the air. Over the cluster was a quilt of burlap, and above this a packing of forest-leaves through which, of course, there would be a slow circulation of air. Now, what size of entrance, if any, is best, in view of this occurrence?

INTRODUCING A QUEEN BY THROWING HER AT THE COLONY, AFTER OTHER METHODS HAD FAILED.

Important discoveries are sometimes made by accident and in despair. Unusual methods are occasionally employed, not with any particular expectation of success, but because approved methods and treatments



This picture does not represent a new variety of fruit, but illustrates how a swarm settled down after finding the limb of a peach-tree too frail to hold them. They dropped off by handfuls, then started on a second branch. Finding that too weak for all of them they commenced a third as shown in the photograph. The swarm belongs to Aaron Radick. White Plains, N. Y. HARRIET R. WHITAKER.

have failed, and there appears to be nothing else to do. Thus, accidentally, was introduced a queen to a stubborn colony by a method not heretofore tried by the writer.

A strong colony was made up of hatching brood, and a capped queen-cell given which the colony destroyed. A second queen-cell met with a like fate. An attempt to introduce a laying queen by the wire-cloth-cage plan resulted in failure. (This method, in brief, is the caging of the queen with young worker attendants from the colony to which the queen is being introduced, in a wire-cloth cage, on the side of a brood comb, preferably over hatching brood and over some honey, and kept so confined with the colony for from 24 to 48 hours before releasing.) After the colony had rejected the laying queen the presence of fertile workers was discovered, and the colony was treated by shaking the bees from the combs at the distance of about 100 feet from the hive, and giving them two more combs of brood.

A second attempt was made to introduce a laying queen by the wire-cloth-cage plan, which failed. I had a dark but otherwise desirable queen that had been caged and kept for a possible emergency for about three weeks; and when I experienced the second failure at introducing a laying queen I determined to try this one. Upon examination, however, I found her attendants all dead from starvation, and the queen so far gone she could hardly move. I thought it not worth while to try to introduce her, as

she appeared almost dead. However, I opened the hive, dumped her on the center of the cluster, gave a puff of smoke on the top and at the entrance, and left her to her fate. She was accepted, and now heads a good colony. Is this the starvation method of introducing queens?

THE EXPERIENCE OF HOPE IN WHICH MOST BEEKEEPERS HAVE OCCASION TO SHARE.

The past season has come about as near to being a failure with many of us, so far as the honey crop is concerned, as has come within the memory of the present generation of beekeepers; but he lacks in wisdom who does not earnestly endeavor to rescue something of success out of failure. If the apiary has been kept up to full strength in anticipation of a forthcoming season of prosperity in honey production, a golden opportunity has been embraced. If any beekeeper's bees are still short of winter stores a golden opportunity is still his; for feeding is practicable, even in winter, and in the cellar or out of doors. The late summer rains came in time to save the clover and give it a vigorous growth, for many of us. We also believe the rains came in time to cause the basswood and fruit-tree buds to set for next season's blooming. With these fair prospects, and with the bees well cared for against the winter period, we cannot but indulge the hope of a good honey crop next season.

Kenmore, N. Y.

PREVENTION OF NATURAL SWARMING RESULTS IN A MUCH GREATER YIELD

17,000 Lbs. of Extracted Honey from 74 Colonies, Spring Count, and Increased to 155

FROM THE LIVE OAK APIARY

Considering this a little above the average for this year in California I thought it might be of interest to some to know how the bees are managed. I have met quite a number of beekeepers since coming here, and I think every one prefers to let his bees swarm naturally; and the more swarms the better. I met one old gentleman who has been in the business here for over forty years, and practices cutting comb foundation in thick pieces, leaving a space in each lower corner of the frame so the bees can build drone comb. He gave for his reason that, the more drones a colony has, the more honey he would get. After quite a discussion he admitted he was doing the wrong thing; but the next spring I found him putting in foundation the same old way. Lots

of people are so satisfied with the way they have been doing things that they want nothing better. Every beekeeper certainly needs to know how to work his bees on the very best plan possible for the best results.

It has been proven time and again by such men as Dr. Miller, G. M. Doolittle, and others that, in order to secure a big crop of honey, one must control swarming. The big colonies make the honey.

But they argue that the swarm and parent colony will make more honey than if kept in one. Let's see. Before a natural swarm comes off, the queen stops laying for from four to five days, and four to five more before she is at her best—twenty days before her bees hatch, and sixteen more before they become field bees—over

forty days of the honey-flow gone. If no swarms, the queen continually lays, and field bees increase every day.

Last February I found my 74 colonies with very little honey and few bees; but the weather was warm and very favorable. The bees found plenty to support themselves, and they were going after it with all their might. I helped them all I could by changing the brood every ten days, placing the capped brood on the outside, as I thought it would stand more cold than the little larvæ and eggs. It is wonderful how they built up. As soon as five or more frames were filled with brood I put on the super (mine has eight frames), or second story. I took from the strongest and helped the weak until I had them all about equal.

Whenever a colony begins to prepare to swarm, or is crowded with bees, shake them. First set the old hive to one side and place a new one in its place with frames of empty combs or foundation. Then open the old hive, take from it a frame with eggs and larvæ, and the queen, and put them in the new hive. Put on the queen-excluder and a wire screen; shake two-thirds of the bees in front of the new hive, and place the two bodies with remaining brood and bees on top of the excluder and screen. Give a small entrance in the second story, so that all field bees can get out and return to the new hive. The screen keeps all the bees down with the queen, and the honey is stored below. This brings about conditions like those of a natural swarm.

In five days remove the screen, and in five days more cut out all queen-cells. In fifteen days from then time the bees were

shaken, remove the queen-excluder to the top of the second story. The queen will at once come above and fill the second story with brood. When the queen was very prolific I used a fourth story. One colony on the scales from May 4 to June 9 averaged 9 lbs. per day. May 16 they made 20 lbs.

No increase was made until the end of the honey-flow. In raising brood to the third or fourth story the bees will build as fine queen-cells as in natural swarming. A week or ten days before the honey-flow was over I placed the excluder with the wire screen on under the top story, and gave them an entrance in the back and succeeded in mating a queen in almost every colony, so at the end of the flow I separated each colony, taking almost all the brood with the new colony, as all field bees would return to the old hive. This gave me a fair increase; and as there is some honey coming in all through July and August the colonies built up in fine shape. Ordinarily I would not have secured any surplus at all; so by having no swarms at or before the honey-flow the bees were kept constantly at work for me storing surplus honey, and the increase came at a time just as good for the bees, but much better for me.

My average was 229 lbs. per colony, besides over 200 lbs. of comb honey for home use.

The theory is, to keep more bees. This is certainly the very best advice. It does not mean a greater number of hives, but more in a hive; and especially at the time of the honey-flow.

Simi, Cal.

HOW MANY TRIPS TO THE FIELD DOES A BEE MAKE IN A DAY?

BY JOHN H. LOVELL

The attempt to determine how many trips to the field a bee makes in a day, recently described by Mr. Heberle, p. 904, Nov. 15, is certainly highly praiseworthy for the great patience displayed. A number of bees were marked with colors; and for 13 hours continuously, on July 15, Mr. Lunden watched the entrance of the hive for the purpose of determining how often the colored bees returned from the field. It is admitted that not infrequently they were overlooked, especially in the afternoon, when the observer became tired. The conclusions reached were that a field-bee makes about ten trips a day—a trip requiring from 30 minutes to two hours—on an average, about one an hour.

Clearly, the observation is only approxi-

mately correct, even for this particular day, since it was found practically impossible to record exactly the number of trips made by any individual bee for so many hours, where so many bees were constantly passing in and out of the hive. For any other day it might be very inaccurate. The number of trips a field bee makes in a day depends upon: 1. The distance of the honey-plants from the hive; 2. The abundance of nectar; 3. Temperature and weather; 4. Length of day; 5. Incidental factors; age and condition of bee, location of nectar in flowers; place of storage in hive, etc.

The best way to proceed, I think, is to make observations, not at the hive, but at the field end, and note how many visits an individual bee will make in an hour under

ideal conditions to a quantity of free honey. In this way exact data can be obtained, which can be used as a basis for further estimates.

On Sept. 12 one bee was trained to visit honey placed on a glass slide about 100 feet from the apiary. The bee was kept under observation for 2 hours in the forenoon and 2½ hours in the afternoon. The visits were recorded as follows:

Bee came to honey	Bee returned to hive	Minutes at honey	Minutes absent
A. M.	A. M.		
10:04	10:09	5	
10:15	10:20	5	6
10:28	10:33	5	8
10:45	10:48	3	12
10:52	10:55	3	4
11:03	11:06	3	8
11:14	11:17	3	8
11:22	11:27	5	5
11:34	11:37	3	7
11:42	11:46	4	5
11:52	11:55	3	6
12:00 M.	12:04 P. M.	4	5
12:13 P. M.			9
For 30 minutes the bee was not under observation.			
P. M.	P. M.		
12:34	12:41	7	
12:46	12:52	6	5
1:08	1:15	7	15
1:26	1:33	7	11
1:44	1:49	5	11
1:57	2:05	8	8
2:11	2:20	9	6
2:27	2:36	9	7
2:45	2:51	6	9
3:00			9

In the forenoon the average length of 12 visits to the honey was about 4 minutes each. In the afternoon the average length of 9 visits was 7 minutes. In the forenoon the average length of the interval during which the bee was at the hive was 7 minutes; in the afternoon, 9 minutes. It will be noted that on the average the bee required in the afternoon 3 minutes more to load and 2 minutes more to unload than in the forenoon. The average number of minutes at the honey during the entire 4½ hours was 5 minutes; and the average number of minutes at the hive was 8 minutes. In some

instances the bee flew about a little while before alighting near the honey. The average number of trips per hour was 4 2-3, which would be at the rate of 46 trips for a day 10 hours long. Where the conditions were ideal—for example, if the apiary were located near a large buckwheat-field or a basswood-forest—a bee would probably make about the number of trips stated.

If, however, the honey-plants were distant some two miles, then a much longer time would be required. I doubt if the flight of a bee will average more than 10 miles an hour; and very likely, when loaded, or it is late in the afternoon, or there is a strong wind, it will be much less. Assuming the rate to be 10 miles an hour, then 24 minutes would be required to make the round trip of 4 miles. Allowing 5 minutes to obtain the load, and 8 minutes to unload, then each trip would require 37 minutes; and there would be only 16 trips in 10 hours.

Again, if the nectar was deeply concealed, as in white clover, or was scarce, then the bee would be unable to gather a load in 5 minutes, but 10 or 15, or even a longer time, would be necessary, so that the bee would make but one trip each hour. It is clear that the number of trips a bee makes in a day varies constantly, and depends upon many factors; but under the most favorable conditions it probably very rarely or never exceeds 50 trips in 10 hours, ranging downward from this number to a few occasional trips made during the middle of the day.

Waldoboro, Maine.

[Is it not possible that, since the bees were working on honey instead of nectar, they became excited and worked more hurriedly than if they had been visiting flowers, and getting nectar instead of honey?—Ed.]

BEE PARALYSIS AND ITS VAGARIES

BY MAJOR SHALLARD

It seems to me that paralysis has considerably altered its nature or its effect upon the bees since it first appeared in Australia. The disease seems to have passed through a steady change, and the symptoms are quite different now from what they were at that time. So different are they that one is inclined to think there are two or more diseases. First, there was heat paralysis—a trembling disease which occurred only during very hot weather. The bees in considerable numbers would be hopping about in front of the hives and trying to fly, but

they were not swollen in any way. We next got the swollen bloated bees, which crawled to the edge of the flight-board and fell off. This was much more severe; more bees were affected, and they died in heaps in front of the hives. Their bowels were obviously choked with fermented food, but they did not void any thing. Perhaps if they had they would have recovered. In the last stage, the one we have reached now, the bees are scattered thinly all over the apiary. There will be, say, a bee to every six square yards. They are not of the hopping variety,

like the first stage, neither are they swollen. To all appearances they are just ordinary bees which are running about the ground, and for some reason cannot fly. If you watch closely you will find that some of them (what percentage I cannot say) will succeed in flying; but the bulk of them will get slower and slower in their motions, and eventually die. If this were all, the trouble would not amount to very much; but it is not. It is only the small end of it.

The disease attacks the bees very suddenly. A bee is, so to speak, well one minute and dead the next; and for every one that dies in the vicinity of the hive, twenty die in the fields. Occasionally, when I have been eating my lunch near an apiary, bees passing overhead have fallen dead in my lap. It is quite a common thing to find bees affected in front of the hive, loaded with pollen.

I have mentioned before in GLEANINGS what is locally known as "disappearing disease." Last winter I and many others lost a lot of colonies through it, and I discovered an isolated case of it in the apiary

about an hour ago. It was a single-story hive to which I had given a pure queen from a nucleus six weeks before. At that time it had four frames of brood and plenty of honey and pollen; and for the amount of brood it was well off for bees. I opened the same hive this morning and found one piece of brood not two inches across, plenty of pollen and honey, and about sixty bees and the queen. All the rest of the bees had "disappeared." I do not know what causes this disease, and I do not know any one who does; but I *think* it is caused by a malignant attack of the sort of paralysis last mentioned, where the bees die while out foraging. I know this condition of affairs is sometimes brought about by shortage of pollen; but in this case there was plenty of pollen and a young queen about a month old whose sisters are doing well in other neighboring hives. If mine is not the right explanation of the cause of the trouble, what is it? The vagarious phases of paralysis have puzzled me.

Mororo, N. S. W., Australia.

BEE TREE STRUCK BY LIGHTNING

BY JOHN E. KEEFER.

On July 27, 1913, lightning struck a large chestnut-tree only a few hundred yards from my home. After the rain my brother walked to the tree to see the damage done, when he noted some bees flying about. Calling me we made an investigation and found that the tree had been the abode of a colony of bees. Lightning struck off the upper part of the tree, but did no damage to the trunk and lower part, in which the bees were located.

We decided to cut out the combs, expecting a lot of honey, as this was a very good season for honey; but when we had a hole

cut in we saw a pitiful sight. Since the tree was hollow, the lightning struck down the inside of it and actually tore the combs to pieces. All that was left was a conglomerated mass of honey, combs, dead bees, brood, rotten wood, and a few demoralized bees.

It was a fine Italian colony, and no doubt the one that left me the June before without as much as bidding goodby. "The way of the transgressor is hard."

I hope the other bees in my apiary may take this as a warning and never abscond.

Millersburg, Pa., Aug. 8.

Beehives in Winter

BY GRACE ALLEN

Still—so still—so strangely still!

No gleam of flashing wings.

The days are miserly and chill.

My hives are still—so strangely still—

And nothing ever sings.

Pale and wan the shivery hours

Are utterly bereft

Of warmth and glow and scent of flowers;

Of flaming summer's perfumed bowers

Not one is left.

O silent home! so like a tomb;

Is every fair hope dead?

O dreamers in your shadowed room,

Huddled close in dusky gloom,

Have all your visions fled?

Not so? Then tell me, you that dare

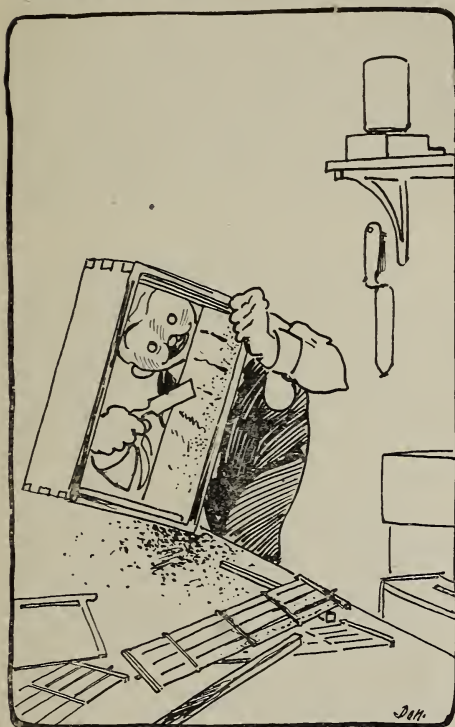
To soar through sunlit gleam,

When skies go dark, and, through gray air,

Unfriendly winds blow everywhere,

How do you keep your dream?

Heads of Grain from Different Fields



THE BACKLOT BUZZER

If propolis is a secretion, why the Sam Hill don't they use it with discretion?

Winter Cluster—Where should it be in an Outdoor-wintered Colony at the Beginning of Winter? Importance of Windbreaks

I am using a double-walled hive, and am going to winter outdoors. Now, I was told that I would surely lose my bees for the reason that they cluster below the frames; and as there was little room, I ought to put a three-inch super on the hive bottom to give them this needed space to cluster. I have only single-walled supers, and know that wouldn't do under a double-walled hive. Tell me about it. Will they go through as the hive is, or should I put a super under? They are heavily loaded with stores for winter; in fact, combs are nearly full, as I took my supers off early to let them fill up and also fed them well.

Cedar Rapids, Ia.

H. L. WALKER, M. D.

[There is no reason why you should lose your bees in the double-walled hive. It does not need an extra super under it nor one on top. The fact that the bees are low down on the frames near the bottom-board is just exactly where they should be. If they were up near the top-bars there would be danger of your losing them before spring. The further fact that the combs are filled with stores is another thing in their favor; and the only place they should cluster is near the bottom, just as you find them in your hive. If your colony is of fairly good strength

there is no reason why you should lose the bees unless you leave the hive exposed where the piercing winds from a level stretch of country would strike the hive hard. If the hive is shielded by windbreak in the form of fences, shrubbery, or buildings of any sort, there is no reason why you should not get good results in wintering. In cold weather the cluster ordinarily is not much larger than a double fist. As it warms up to a temperature of about 50 or 60, the bees, if the colony is strong enough, should cover nearly all the frames; but when the temperature drops down to about 10 degrees above zero, especially if there is a high wind, or if it is below zero and still, the cluster will shrink down to about the size of the double fist, as first mentioned.—ED.]

Hand's Convertible Hive; Further Particulars Concerning It

Mr. J. E. Hand:—I read with interest your articles on the 16-frame hive in the *American Bee Journal* and *GLEANINGS*; but while, to an experienced beekeeper, your description may be all that is necessary to me as a beginner, some of your statements are not as plain as they might be.

If your hive is such an improvement on other makes, why don't you give us all the details, so that some of us can make and try them? Would you advise a beginner to start with such a hive, or had he better take one like the ten-frame dovetailed?

As I understand your article in *GLEANINGS* for Nov. 15 there must be a duplicate hive for each colony when you divide it into two of eight frames each and pack for the winter. What is done with these extra hives the following spring? Are the 16 frames united into one colony again? Is there an entrance at the bottom on one side, so that the bees can reach the entrance to the hive proper? Are the 16 frames placed in the hive parallel to the entrance, like Arthur Miller's, or at right angles in the regular way? Should you write another article for the journals I hope you will make the description of this 16-frame hive so plain that a novice can understand unless you intend to manufacture and place on the market these hives yourself.

Reading, Pa.

H. B. SHOLLENBERGER.

[Mr. Hand sends the foregoing and his reply to us. As others are doubtless interested, we are pleased to place them before our readers.—ED.]

I am not advising any one to adopt the Convertible hive; but if you feel the need of improvement in hive methods it may help you. In construction it is exactly like the two-story dovetailed hive except in length. As we now make it, it is 20 x 24, with 14 frames and a $\frac{7}{8}$ division-board, and frames parallel with entrance in summer, and at right angles to it in winter. The wintering equipment is a simple box without cover or bottom, made of half-inch stuff, 13 inches wide and 12 deep. To prepare for winter, assemble eight of the best-filled combs, including the bees, within said box, and place it on the floor inside the hive, with frames extending at right angles to their former position, and at right angles to the hive entrance, which is at the end. This creates a liberal space surrounding the inner chamber except the end having the entrance, which faces south or east, and is protected by a heavy sheet of flax-board paper between the two hives, the two entrances corresponding in position. The deep inner chamber creates a liberal space under frames, and the top story of the hive holds packing material above. The hive is not moved, nor the entrance changed in position or appearance. Increase is optional.

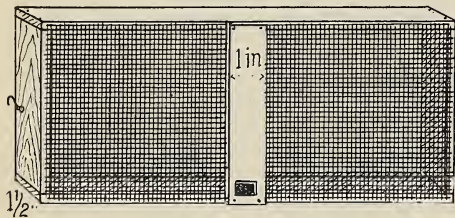
Birmingham, Ohio.

J. E. HAND.

A Device to Stop Robbing

I give you a device I use to stop robbing—the worry of most beekeepers at times. No article I ever used seems to hit the spot, and trap hives are a bother, besides killing bees that are following their natural instinct. With my plan the home bees do what killing is to be done, and even a small nucleus will take care of itself.

I take a frame about an inch deep, and of any size to suit the hive to be protected, so as to cover the whole entrance and to extend five or six inches up the hive-body. I cover the frame with wire screen, and across the short way of this frame (which would be vertical when put on a hive) I nail a thin strip of wood, say about an inch wide. At the bottom I cut a hole half an inch square through this thin wooden strip and screen. This hole will be in the center, and on a level with the hive entrance. Now the protector is ready for the fastenings, which can be hooks, to slip over nails or screws on the sides of the hive, or the frames may be toe-nailed into the front of the hive.



The principle is this: Robbers, whether insects or men, know they are doing wrong, and so try to get in and out by attracting as little attention as possible; so when they fill up and get to the light at the hive entrance they think themselves safe, and start to fly; but the screen stops them. The home bees nab them; and if they get away from one, there is another ready for him; and you will find very few robbers get away to bring others. They are kept too busy to take time to find the opening they came in at. On the other hand, the home bees can get into their own hive with little trouble; and, while it bothers them to find their way out, yet they soon get "on to it;" and during their search they find the strange bee in the same boat, and finish him; for if he does break away from one he runs into the arms of another. It is but a short time until the home bees begin to stand guard at the opening; and if a few pass the sentries they never get out alive.

I have used this protector on strong and weak colonies, and it has never failed to stop the robbing. By "strong" I mean when feeding is going on in the spring, before the summer strength has been attained.

Hartstown, Pa.

LEWIS M. SHAFER.

Dequeening without Requeening to Prevent Swarming

In GLEANINGS for Oct. 15, page 805, appears an article by J. E. Hand relative to "Requeening without Dequeening." I wish to know if the hole is made in the super so the virgin can go out and be fertilized, and return to that super, and whether, as soon as she begins to lay, she is allowed to go below. Will she take the place of the old queen the same as a virgin would?

Phoenix, Ariz.

B. JONES.

[This was referred to Mr. Hand, who replies:]

In requeening by the virgin-queen method without dequeening, some have reported the virgin killed instead of the old one. Perhaps it will be safer to remove the old queen and substitute a ripe queen-

cell, for bees have a decided antipathy against virgins when eggs and larvæ are present. If done just before the old queen reaches the zenith of fertility it will prohibit swarming with large hives; but reports show that it is not uniformly successful with small hives. It is virtually the same method practiced by Dr. Miller with eight-frame hives. Any thing that restricts queen fertility will cause swarming; hence undiminished queen fecundity, coupled with large hives, is immune from swarming. Any attempt to have a queen fertilized in a hive with a vigorous queen will ultimately result in failure where bees have access to both queens through perforated metal.

Birmingham, Ohio.

J. E. HAND.

Beekeeping and Pigeon-growing

I have some bees here in Arizona, but not enough to make my living with, and there are not any more locations that I know of that would pay to locate bees on; so now I should be pleased to know if you think raising some pigeons would pay along with my bees, as I should like to have something besides the bees to make my living, so if we have a poor year for honey the pigeons would help out. I think there would be a good market for the pigeons, but I would have to ship them to Phoenix, which is 35 miles from here.

Buckeye, Ariz., Nov. 17.

ALBERT J. ROSS.

[We do not know very much about the business of raising pigeons, but doubt very much if you would find it a profitable industry to work along with the keeping of bees. Perhaps some of our readers could inform us. Poultry-raising or fruit-growing go very well with the keeping of bees, and we should be inclined to think that you would do better to adopt one of these in place of the business of raising pigeons. In the last edition of our A B C and X Y Z of Bee Culture we have articles on beekeeping and poultry-raising, beekeeping and fruit-growing, and beekeeping and gardening combined.—ED.]

Bee-brush Made of Rope

I have several little conveniences that I use in my apiary, one of which is a brush for clearing the combs of bees. Take a round stick, 16 inches long, and with a rip-saw divide it for about 9 inches, leaving the other end for a handle. Take a piece of one-inch manila rope 6 inches long, and with the strands fill the opening in the stick, allowing them to project on both sides of the stick. At the end secure it with bee-wire and securely nail the stick with one-inch brads. This makes the best brush I have seen, and is almost indestructible.



Another convenience is my covered hive-seat and tool-box. My hive-seat is 14 x 16, with a pocket on each end 6 x 14. These pockets come within an inch of the top, and a cover is made to telescope over the seat and rest on the top of the pockets. Under the seat I have my smoker fuel; in one of the pockets my smoker, and in the other my tools. The framework of the cover is made of 7/8 x 1 1/2-inch white pine. The roof is rubberoid. Every thing under it keeps dry, though I leave it standing in the apiary all summer, and at the same time I take no chance of setting any thing on fire in the honey-house.

Milo, Ia.

B. A. MANLEY.

Apparatus for Setting Wedges in Top-bars

I believe I have an improvement on the ordinary method of putting in wedges. My work-bench is about two feet wide, and the wedge-setting apparatus is about the middle of it, so I have plenty of room to work in front of it.

In using it I start the wedge at the left end, draw my right hand along, thus starting the wedge in the groove its full length. This leaves one hand at each end of the frame. It is lifted over the part of the machine that projects above the bench, and is pulled up square against uprights. One quick pressure on the foot lever then forces the wedge home. The

to have extraordinary ability to find their old hive even though the latter be shifted to a new location. —ED.]

Bee-stings for the Cure of Alcoholism; Will Combs Placed Crosswise in a Super Prevent a Queen from Laying therein?

The following item from *L'Apiculteur* can hardly fail to interest the readers of GLEANINGS:

"The physicians of a London hospital have recently, by pure accident, discovered bee-stings to be efficacious in the treatment of alcoholism. Five men, of whom four were inveterate alcoholics, were treated at this hospital for chronic rheumatism by bee-stings. Besides a great improvement in the state of the patients, the physicians observed with astonishment that the treatment had done still more—it had caused them to lose the taste for alcohol. After leaving the hospital the very sight of alcohol nauseated them, and for several months none of them have touched the bottle."

In a back number of *L'Apiculteur* it is stated positively that the queen will not lay in the super if the super combs run crosswise the brood-frames.

F. L. POLLOCK.

Stouffville, Ont.

[There must be some mistake somewhere, as we do not believe that any reputable bee journal like *L'Apiculteur* would make or allow a statement to be made in their columns that a queen will not lay in a

super with the combs running crosswise of those in the brood-nest. At all events, it is not true. Queens will seldom lay in a comb-honey super, no matter how the sections are placed with reference to the combs in the brood-nest. In an extracting-super the queen will go above if she is crowded below, no matter how the combs are above.

The statement of the effect of bee-stings on alcoholism is interesting and valuable if true. Does any one on this side of the great pond know?—ED.]

Fig. 1

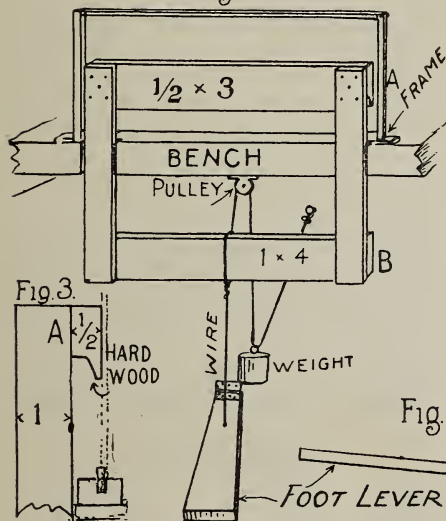
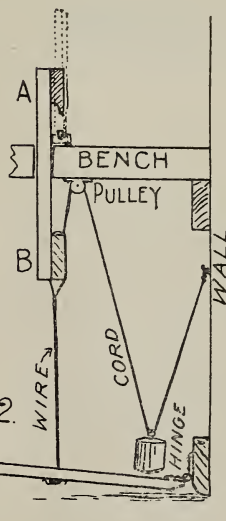


Fig. 2



weight lifts the wedge-driver up as soon as the lever is released. It should be so hung that it rests upon the foot-lever when it has raised the driver about two inches.

The driver should be about half an inch shorter than the inside of the brood-frame so as to work easily.

This device is very easily made, and its use leaves both hands free to hold the frame.

Hobart, Ind.

JOSEPH M. MUNDELL.

Willow-herb with a White Blossom

I should like to ask you concerning a plant growing here in the burnt-over districts of northeast Minnesota which seems to resemble in every way but one the willow-herb described in the A B C book. The one differing characteristic is that this plant has a white blossom instead of pink. What is it? Another question:

When I divided swarms last summer, changing the position of the old hive and putting a new one on the old stand, why did the old bees not return to the old locality instead of nearly all, as it seemed, staying in the old hive, thus leaving the new colony very weak?

Markville, Minn., July 31. FRANK A. GRACE.

[Undoubtedly the plant you mention is the willow-herb, for very often the blossoms are white instead of pink.

Probably your old colony was not far enough away from the new hive on the old stand so that the bees found it and returned to it instead of remaining on the old stand with the new colony. It depends somewhat upon the bees, some bees seeming

Is it Feasible to Send Bees in Carlots in Cold Winter Weather?

Knowing that you have had a great deal of experience in shipping bees I should like to know if it would be safe to ship a carload of bees, say about Christmas, from northern Iowa to northern Minnesota, a distance of about 350 miles.

Lime Springs, Ia.

O. S. FRANKSON.

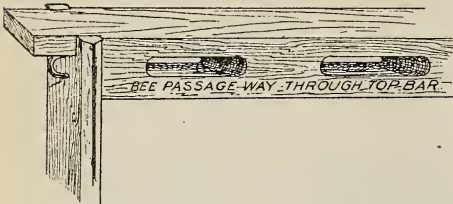
[We see no reason why you should not be able to ship your bees at the time stated. We have moved bees by sled in the very coldest winter weather, and found that those bees came out in the spring in fine condition. We see no reason why you could not move them by rail just as well. There will be no danger of the bees suffocating if it is cold; and, in fact, it is our opinion that bees will go through better in cold weather than during hot.

In GLEANINGS for June 1 and the July 15th numbers you will find the plan that we used in moving bees south and back again. While it is not quite the same as we use now, it would work very well for a small number of colonies. One thing to

bear in mind is that the hives must be loaded so that combs are parallel with the track or rails.—Ed.]

Horizontal Openings through the Top-bars

I am a beekeeper of fifty years, and have had quite good success in wintering out of doors. For many years I have placed a Hill device of some sort between the frames and enamel cloth; and now the idea has struck me, "Why not have a passage through the top-bar for all seasons?" It seems as though it would be a great help to the bees in summer working as well as for winter.



My beeyard is enclosed by an eight-foot board fence on three sides—about a quarter of an acre; then it is grown up with trees—a sort of an idle-wild, with evergreen windbreaks near by, so it is well protected. My bees winter better than those of most beekeepers here.

I have taken GLEANINGS from the first number. I keep about forty colonies, and am engaged in general farming, and mix in beekeeping.

South Lyon, Mich.

ALONZO BORDON.

[Passageways through the top-bars have been suggested, but it is doubtful whether the advantage thus secured would pay for the comparatively great expense of cutting the holes.—Ed.]

Why the Old Bees Leave the Hive to Die.

It's strange how popular beliefs cling—page 867, Nov. 1, T. P. Robinson. The facts are, that no kind of bee leaves the hive with the express purpose of dying. Bees die in the hive in cold weather, and are carried out on warm days and dumped in front. They do the same thing when kept in for any reason. When a bee wants to leave the hive it tries to do so by wing; but if it can't do so by wing it will go on foot, and, more than likely, never be able to get back, and consequently it will perish.

Galena, Kan., Nov. 5.

J. P. BRUMFIELD.

Geese for Keeping Grass Down

On page 719, Sept. 15, Mr. A. J. Halter gives his experience with rams in the apiary as mowing-machines; but it does not seem to have been a great success, as he intends to try ewes next year. I'm afraid he will not improve matters, as they are just as likely to knock the hives over as the rams have done; but if he will try a few geese they will crop the grass bare, and not interfere with the bees in any way. I keep sheep, geese, and bees.

W. A. TEARE.

N. Ballabey, Isle of Man, England.

Do Not Stir the Syrup when Making Candy

Please tell our brother from St. Paul, Minn., page 153, Feb. 15, that his trouble is that he stirs the candy while it is boiling. That is why it goes back to sugar again. I had the same trouble as long as I stirred it. He should boil it slowly and not stir. Then it will come out all right, and the quality of the candy will be good. I tried about four batches before I got one that was all right.

Tingley, Iowa, Feb. 21.

F. G. HAUSZ.

Beekeepers, as a Class, Temperance Men

We had the annual meeting of the Maryland State Beekeepers' Association this week, and were fortunate enough to have with us Mr. W. A. Selser, of Philadelphia, who gave us a very interesting address. We then went out to a dinner given by the Baltimore Beekeepers' Club at a hotel with bar attached; although we had about 30 to dine, nearly in sight of the bar, not one took a drink of any kind, which I think speaks very well, as we have men of all classes in the club.

Baltimore, Md., Nov. 23. S. G. CROCKER, JR.

[The same thing has been noted at other conventions of beekeepers when they met at hotels. Men who produce honey are a dry lot.—Ed.]

County Association Advertises Bee Business

We are getting a lot of alfalfa in this country, and only in the last two or three years did people think bees would live here. A few of us have bees, and have done well here. There are very few in the county. I have 70 colonies, which is the largest apiary in the county. For the last two years some of us have had to fight foul brood. We organized a county association to fight this, and, in general, promote the business, and have had several very profitable meetings.

To advertise the business our association made an exhibit at a recent county "silo school," where all the best farmers come. As secretary of the association I had printed a little statement of what some of the beekeepers here have been doing. We have a fine bee country here, and our association is going to develop it.

Cordell, Okla., Dec. 2.

A. W. F. LEE, Sec.

Washita County Bee Keepers Association.

Do Bees Pay? Will Bees Live Here?

This association announces that in this county where there is ALFALFA, BEES properly handled, PAY BETTER DIVIDENDS than any other investment in the farm. HUNDREDS OF DOLLARS go to waste every year on the alfalfa farms of this county which might be saved by bees. In addition to the honey the alfalfa seed crop and the fruit crop is increased 10 to 25 per cent by bees.

SOME RECORDS

Here is what some of your neighbors and members of this association are doing. Ask them.

M. MURPHY, 5 MILES SOUTH CORDELL, 1912.		MRS. ROBERT STEELE, CORDELL, 1912.	
Increased \$15.00 in 2 colonies of bees. One colony died.		Colony on alfalfa, June 18 and by August 20 had produced 10 lbs. of honey @ 15c..... \$1.50	
Increased from one to six, or gain of five colonies.		Loss Supplied..... .25	
1 colony valued at \$100.00..... \$100.00		Net Gain..... \$1.25	
200 lbs. dry alfalfa @ \$10.00..... \$2.00		1 colony valued at \$100.00..... \$100.00	
Net Gain..... \$102.00		200 lbs. dry alfalfa @ \$10.00..... \$2.00	
Loss Supplied..... \$17.00		Net Gain..... \$102.00	
Loss cost of supplies..... \$12.00		Loss Supplied..... \$17.00	
Net Gain..... \$73.00		Loss cost of supplies..... \$12.00	
Increased from 5 hives to 14 hives, 7 gals.		Net Gain..... \$73.00	
200 lbs. dry alfalfa @ \$10.00..... \$2.00		Increased from 1 to 12 colonies, 5 gals..... \$5.00	
221 lbs. Honey taken @ 15c..... \$33.15		100 lbs. dry alfalfa @ \$10.00..... \$2.00	
Total Gain..... \$35.15		Total Gain..... \$7.00	
Loss Supplied..... \$1.50		Loss Supplied..... \$1.50	
Net Gain..... \$33.65		Net Gain..... \$5.50	
Loss cost of supplies..... \$12.00		Loss Supplied..... \$17.00	
Net Gain..... \$21.65		Loss cost of supplies..... \$12.00	
Increased from 1 to 12 colonies, 5 gals..... \$5.00		Net Gain..... \$21.65	
100 lbs. dry alfalfa @ \$10.00..... \$2.00		Increased from 1 to 14 colonies, 7 gals..... \$7.00	
200 lbs. Honey taken @ 15c..... \$30.00		100 lbs. dry alfalfa @ \$10.00..... \$2.00	
Total Gain..... \$37.00		Total Gain..... \$9.00	
Loss Supplied..... \$1.50		Loss Supplied..... \$1.50	
Net Gain..... \$35.50		Total Gain..... \$10.50	
Loss cost of supplies..... \$12.00		Net Gain..... \$8.50	
Net Gain..... \$23.50		Loss Supplied..... \$17.00	
Increased from 12 to 15, 1 gals.		Loss cost of supplies..... \$12.00	
4 Hives @ \$10.00..... \$40.00		Net Gain..... \$23.50	
100 lbs. dry alfalfa @ \$10.00..... \$2.00		Increased from 12 to 14 colonies, 6 gals..... \$6.00	
Total Gain..... \$42.00		410 lbs. Honey taken @ 15c..... \$61.50	
Loss Supplied..... \$1.50		Total Gain..... \$67.50	
Net Gain..... \$40.50		Loss Supplied..... \$1.50	
Loss cost of supplies..... \$12.00		Net Gain..... \$66.00	
Net Gain..... \$28.50		Increased from 1 to 7 colonies, 4 gals..... \$4.00	
Increased from 1 to 7 colonies, 4 gals..... \$4.00		100 lbs. dry alfalfa @ \$10.00..... \$2.00	
100 lbs. dry alfalfa @ \$10.00..... \$2.00		Total Gain..... \$6.00	
Total Gain..... \$6.00		Loss Supplied..... \$1.50	
Loss Supplied..... \$1.50		Net Gain..... \$4.50	
Net Gain..... \$4.50		Loss cost of supplies..... \$12.00	
Loss cost of supplies..... \$12.00		Net Gain..... \$4.50	
Net Gain..... \$4.50		Increased from 12 to 15 colonies, 1 gals..... \$1.00	
Increased from 12 to 15 colonies, 1 gals..... \$1.00		100 lbs. dry alfalfa @ \$10.00..... \$2.00	
100 lbs. dry alfalfa @ \$10.00..... \$2.00		Total Gain..... \$3.00	
Total Gain..... \$3.00		Loss Supplied..... \$1.50	
Loss Supplied..... \$1.50		Net Gain..... \$1.50	
Net Gain..... \$1.50		Loss cost of supplies..... \$12.00	
Loss cost of supplies..... \$12.00		Net Gain..... \$1.50	
Net Gain..... \$1.50		Increased from 12 to 15 colonies, 1 gals..... \$1.00	
Increased from 12 to 15 colonies, 1 gals..... \$1.00		100 lbs. dry alfalfa @ \$10.00..... \$2.00	
100 lbs. dry alfalfa @ \$10.00..... \$2.00		Total Gain..... \$3.00	
Total Gain..... \$3.00		Loss Supplied..... \$1.50	
Loss Supplied..... \$1.50		Net Gain..... \$1.50	
Net Gain..... \$1.50		Loss cost of supplies..... \$12.00	
Loss cost of supplies..... \$12.00		Net Gain..... \$1.50	
Net Gain..... \$1.50		Increased from 12 to 15 colonies, 1 gals..... \$1.00	
Increased from 12 to 15 colonies, 1 gals..... \$1.00		100 lbs. dry alfalfa @ \$10.00..... \$2.00	
100 lbs. dry alfalfa @ \$10.00..... \$2.00		Total Gain..... \$3.00	
Total Gain..... \$3.00		Loss Supplied..... \$1.50	
Loss Supplied..... \$1.50		Net Gain..... \$1.50	
Net Gain..... \$1.50		Loss cost of supplies..... \$12.00	
Loss cost of supplies..... \$12.00		Net Gain..... \$1.50	
Net Gain..... \$1.50		Increased from 12 to 15 colonies, 1 gals..... \$1.00	
Increased from 12 to 15 colonies, 1 gals..... \$1.00		100 lbs. dry alfalfa @ \$10.00..... \$2.00	
100 lbs. dry alfalfa @ \$10.00..... \$2.00		Total Gain..... \$3.00	
Total Gain..... \$3.00		Loss Supplied..... \$1.50	
Loss Supplied..... \$1.50		Net Gain..... \$1.50	
Net Gain..... \$1.50		Loss cost of supplies..... \$12.00	
Loss cost of supplies..... \$12.00		Net Gain..... \$1.50	
Net Gain..... \$1.50		Increased from 12 to 15 colonies, 1 gals..... \$1.00	
Increased from 12 to 15 colonies, 1 gals..... \$1.00		100 lbs. dry alfalfa @ \$10.00..... \$2.00	
100 lbs. dry alfalfa @ \$10.00..... \$2.00		Total Gain..... \$3.00	
Total Gain..... \$3.00		Loss Supplied..... \$1.50	
Loss Supplied..... \$1.50		Net Gain..... \$1.50	
Net Gain..... \$1.50		Loss cost of supplies..... \$12.00	
Loss cost of supplies..... \$12.00		Net Gain..... \$1.50	
Net Gain..... \$1.50		Increased from 12 to 15 colonies, 1 gals..... \$1.00	
Increased from 12 to 15 colonies, 1 gals..... \$1.00		100 lbs. dry alfalfa @ \$10.00..... \$2.00	
100 lbs. dry alfalfa @ \$10.00..... \$2.00		Total Gain..... \$3.00	
Total Gain..... \$3.00		Loss Supplied..... \$1.50	
Loss Supplied..... \$1.50		Net Gain..... \$1.50	
Net Gain..... \$1.50		Loss cost of supplies..... \$12.00	
Loss cost of supplies..... \$12.00		Net Gain..... \$1.50	
Net Gain..... \$1.50		Increased from 12 to 15 colonies, 1 gals..... \$1.00	
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100 lbs. dry alfalfa @ \$10.00..... \$2.00		Total Gain..... \$3.00	
Total Gain..... \$3.00		Loss Supplied..... \$1.50	
Loss Supplied..... \$1.50		Net Gain..... \$1.50	
Net Gain..... \$1.50		Loss cost of supplies..... \$12.00	
Loss cost of supplies..... \$12.00		Net Gain..... \$1.50	
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Increased from 12 to 15 colonies, 1 gals..... \$1.00		100 lbs. dry alfalfa @ \$10.00..... \$2.00	
100 lbs. dry alfalfa @ \$10.00..... \$2.00		Total Gain..... \$3.00	
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A. I. Root

OUR HOMES

Editor

The effectual fervent prayer of a righteous man availeth much.—JAMES 5:16.

His delight is in the law of the Lord; and in his law doeth he meditate day and night. . . . His leaf also shall not wither; and whatsoever he doeth shall prosper.—PSALM 1:2, 3.

In our recent talks about answers to prayer there is one point upon which I did not touch; and I think it is a point where skeptics and infidels and everybody else will agree, or pretty nearly so. I can illustrate it by two incidents that happened years ago.

About twelve miles north of Medina, on the road to Cleveland, there used to be a fruit-grower and market-gardener. He was quite successful when he could keep away from the saloons of the great city of Cleveland; but whenever he took a load of fruit or produce to the city, some one would ask him to have a drink; and too often his money from the crop that his busy wife and children had helped to produce and gather went into the till of the saloon-keepers. Finally one fall, when he had some extra-fine grapes, his wife, fearing to trust him in the city, persuaded him to take his load to Medina. In order to hold it all in good shape he put on a big hay-rack which was covered with baskets of nice grapes with other produce in the middle of his load. There happened to be a scarcity of fruit and vegetables at that time, and in a little time he sold out for something like \$40.00 in cash. At this point his *duty* was to go straight home. His wife and children needed the money for clothes, shoes, etc., for the coming winter. But some evil genius who knew his weakness asked him to have a glass of beer. At that time there were four saloons running in full blast in our little town of Medina. There was a saloon close by each one of our three churches, and a saloon down by the railway. After Mr. B. had taken "one drink" (?) he proposed to go straight home; but I am sorry to say that at that time in our history, some thirty years ago, there was almost always a crowd of loafers waiting for such a victim. They gathered around Mr. B. and asked him to "treat." Under the influence of the one drink he "mellowed up," as we might say, and, as a matter of course, decided he could *afford* to celebrate his good luck in selling out by giving the crowd a little treat. After they had had a drink all around, the whole tribe marched over to another saloon and then to another; and by the middle of the afternoon somebody told me that he was not only treating the whole crowd in every saloon in town, but some of the crowd fol-

lowing him, who had been careful not to drink *too* much, asked him for the loan of a dollar; and then some one else of the crowd said that *he* needed to borrow a dollar. Before night his money was all gone. He had made the rounds of the saloons, even the one down by the railroad, half a mile away. His last copper was gone. His good friends loaded him on his wagon and started him home. I went to an attorney and asked him what could be done about it. He said nothing could be done unless Mr. B. would consent to testify against his chum friends.

Now, here is the point I wish to make to you concerning the power of prayer. I was indignant to think that our town should be so cursed by these "enemies of all righteousness," and prayed that God would direct me. At that time I was conducting a Sunday-school in Abbeyville, where there was a saloon and also a brewery. This afternoon Sunday-school was on the road to Mr. B.'s place; but he lived about seven miles further on. After Sunday-school I drove out to his house. I reached there toward nightfall. I do not think I had ever talked with him, although I knew him by sight. You may be sure I prayed over the matter more or less during that twelve-mile trip with horse and buggy. I knew it was a delicate matter to go into an intemperate man's home, and to attempt to talk with him; and I was a good deal discouraged when I found myself a very unwelcome visitor. The good wife especially almost resented interference from a stranger, and Mr. B. would not talk at all. They evidently were anxious to get rid of me. The sight of the poorly dressed wife and children, and the scanty furnishing of the humble farmhouse all together, made me feel that my visit was an intrusion, and that I had made a mistake, even though I *had* prayed to be guided. With a sad heart and a discouraged feeling that none of you can understand unless you have "been there," I approached the door. In almost complete desperation that little prayer came once more, "Lord, help!" I do not know but it is a *good thing* for us, dear brother and sister, to become discouraged once in a while. As a rule our prayers are only half prayers unless we are in a *tight place* somewhere. Well, just after that brief mental prayer it occurred to me there could be no harm in asking them to kneel with me while I prayed for the father and mother, and for the children huddled together in silence in that little home. They consented to kneel

down. At that time I was comparatively new in the Master's service and training, and my prayer would not compare at all with that of an educated minister of the gospel; but as I finished and rose up, I was astonished to see the mother in tears. By the way, friends, mother's tears—*sometimes*—move mountains. The mother broke down completely, and amid her sobs she made a complete confession. She said, in substance, "Mr. Root, you do not know how we toiled and slaved all summer to get up that nice load of grapes and other things. We were all sadly in need of shoes and clothing. In fact, we have not been to church or Sunday-school, because we have not things fit to be seen like other folks. I looked forward to the time when with the proceeds of this load of stuff we could get shoes and clothing; and when my husband came home with his money all gone, and hardly able to put out his team, I felt as if I should *have* to give up."

By this time the tears were running down the face of Mr. B. also, and with broken words he said he would do any thing in the world to follow me, in any course I could point out, in order to be *free* from the "demon" of drink.

Do you think, friends, I drove home in the dark discouraged? Bless you, no. Although it was a long cold drive over roads such as we had in olden times, I felt happy, rejoiced at *one more victory*, and sang praises all the way. Next Monday morning, according to promise, my friend was on hand. The common-pleas court was in session here then. He went before the jury and told them there as much as he could remember. He could recall loaning the money right and left, but remembered *positively* only one man—one to whom he had "loaned" a two-dollar bill. He and I went to see this man, and the man made an excuse for his part of the transaction as follows: He said the crowd was going to get all the man's money, and he decided he would get what he could, and *give it back to him* as soon as he could find him sober. This was the saloon-keeper's excuse for his part of the transaction. You can take it for what it is worth. All the rest of the crowd who had followed him all day long denied getting any of his money. This was a good example illustrating the sort of *friends* a man has when he treats the crowd.

Well, the outcome was such a shaking-up in the saloon business of Medina as it never had before. The one down by the railroad quit business, or at least it quit an *open* business; and the whole matter was only a prelude toward making Medina dry. Before

another Sunday came around a certain business man of Medina called on me and said something as follows: "Mr. Root, your starting Sunday-schools and looking after the children, teaching them texts, etc., is all right. Nobody makes any objection; but when you get out of your beat, as you did last Sunday afternoon, and start up trouble by poking your nose into other people's business, you are out of your place; and I warn you that *you* will get into trouble if there is any more of it."

I do not remember what answer I gave him, but I had a feeling in my heart that reminded me of the words of Peter—"We ought to obey God rather than man."

Now, friends, the above is an illustration of the answers to prayer which I think none of you will object to, no matter *what* may be your belief. If prayer helps us to accomplish results that could never be brought about otherwise, by all means let us pray *while* we work.

Just one more point right here:

Of course I knew that many men start out like Mr. B. with faithful promises, and yet they are tripped up by devils in human form. I went to the pastor of the little church nearest their home. I told him all the circumstances, and he promised to look after Mr. B. with fatherly care. In due time I received word from the pastor, saying that the whole family were going to church regularly, and gave abundant promise of good results; and Mr. B. told the good pastor that my visit to him did more good than any thing that had ever happened during his whole life. Whenever he came to Medina after that he came to my store first to let me see that he was keeping the promise he made before God, and before his wife and children. He died years ago, a sober man, and I have reason to believe he never drank a drop after that Sunday night.

"He that converteth the sinner from the error of his way shall save a soul from death, and shall hide a multitude of sins."

Now, while this matter is before us let me give you another illustration. Four miles west of us is a place that used to be called York Center. There has never been a saloon there, although I think liquors were at an early day sold at a hotel there. One Sunday after church here in Medina a good brother spoke to me something as follows: "Mr. Root, unless you stop it, a saloon will be opened to-morrow morning at York Center. A room has been rented, the liquors purchased, and they are standing in the box to be put out on the shelves to-morrow morning."

"But," said I, "Mr. C., why should I

stop it? Have the good people at York no objection and no interest in the matter?"

"I do not know any thing about that, Mr. Root; but a saloon is going to be opened, as I told you; and if you do not put a stop to it I do not know who will. In fact, I do not think anybody else will bestir himself unless you do, as I say."

I tried to shirk the responsibility as no affair of mine; but I could not get rid of it. It was on my conscience. I do not know but I felt something as Jonah did when he was told to go to Nineveh. Sunday afternoon it began to rain, and then it turned to snow. The liveryman would not be likely to be willing to let a rig to go out in such a storm. I put on some heavy shoes, got an umbrella, and started off on a four-mile trip up the railroad track. I was acquainted with just one man at York, and he was a pronounced skeptic and an avowed infidel, and a loud one. Notwithstanding this we were well acquainted, and I called on him. Of course, he was full of talk, and in his talk he said something like this:

"Mr. Root, you Christian people make a great ado about intemperance. You have temperance meetings and organizations. You pass resolutions and appoint committees, but you do not *do a thing*."

Our good pastor, Rev. A. T. Reed, once said in one of his prayers, "O Lord, we thank thee for our enemies, because they tell us the truth when our friends would not dare to." Now, is there not some truth in the words of my skeptical friend? I said to him pleasantly, "Mr. V., this may be true, but how about you *infidels*? You do not talk, and pass resolutions, but do *you* really do any thing?"

"Yes, sir; we see what needs to be done, and then we go right to work and *do it*."

Of course, the above was pleasantry, and we both laughed; but my walk in the snow-storm had awakened me. I think I must have prayed about every step on the way, and I was ready for business. I rose up and said:

"Mr. V., there is going to be some *real work* done this Sunday night, and a Christian and an infidel are going to do it together. I accept your challenge; and you are going with me to visit this young man who is going to start a saloon to-morrow."

"Oh, no! no! Mr. Root. You will do very much better alone. You are the man, but I have no gift that way. I am sure I would just hinder matters."

"No, you wouldn't, Mr. V.; I have looked out for that. You see you are *acquainted* with this man, and with his wife and children. Now, you are going with me, and

you are going to introduce me and tell *why* I came, etc."

As he still protested I told him (of course good-naturedly) that he was going with me, even if I had to pull him over by the coat-collar, *and he went*. I wanted him to rap at the door. But he protested and hung back, so that I did the rapping. When the door was opened I said, "Mr. V., you are acquainted with these people—come up here and introduce me."

I cannot remember his words of introduction; but it was laughable, if the circumstances had not been so grave. We went in and sat down. I reasoned and plead. Among other excuses the father said he would have to educate his children, and he did not know any other way to earn a livelihood. Great heavens, friends! Just think of it—starting a saloon in order to get the means to *educate* a family of children! I appealed to the mother, but she would not talk, more than to say briefly that her husband was going to be very careful to sell liquor only to those where it would do no harm, etc. Like the father and mother I have mentioned first, they deemed my visit an intrusion, and were evidently very anxious to get rid of me. My friend V., although he spoke hardly a word, also felt very much out of his beat. The former transaction I have mentioned had given me faith. I felt that God was on my side, and, consequently, "whom should I fear?" With more faith than on the previous occasion I knelt and prayed that God would direct the father and mother, and I prayed for the children. What do you think happened then? This mother, like the one I have mentioned before, arose with tears streaming down her cheeks. But something happened *more* than a woman's crying. She marched across the room with a queenly step, shook her fist in her husband's face, and said, as nearly as I can remember, "Sir, I hereby give you warning that, the minute you open that saloon, *you* and *I* part. I have objected from first to last. I have been cajoled and hoodwinked into this business against my better conviction. I submit no longer. For the sake of these children, you and I separate the minute you unpack those goods."

I have told you, friends, about the "happy surprises" that a Christian meets in life—yes, unexpected *happy* surprises, and the above was one of them; and I did not feel troubled nor worried when the man jumped up and said, "Mr. Root, are you not a pretty specimen of a Christian to push yourself into a man's house uninvited, and make trouble between him and his wife?"

I cannot recall at this late day what

answer I gave; but I rather think I laughed, even if I had made trouble, although the *real* trouble seemed to have started before I arrived there. He asked me what he should do with the goods he had just bought. I said:

"Ship them back where they came from, and tell them all the circumstances, especially that your wife objects to the business."

Do you think, friends, a divorce followed? Why, bless your heart, no! There was no divorce, neither was there a saloon opened. When we got outdoors my skeptical friend was profuse in his indorsement of *my* way of doing temperance work. Said he, "Amos, that is just it exactly. What you did is just according to my notion. I *believe* in this kind of Christianity," etc.

Now, I confess I do not know whether this man adhered to his profession of *belief in prayer* at that time or not. In thinking it over now it occurs to me I should have taken *him* to the pastor of one of the two churches there and got the minister to look after him as the other pastor looked after Bro. B. And right in here comes that beautiful admonition the dear Savior gave to Peter: "If thou lovest me, feed my sheep." Dear friends, are we who profess to be followers of the Lord Jesus in our several places of work, praying, "Thy kingdom come"? and are you looking after and feeding the *sheep* and the *lambs* that are in such *very great need* of food and encouragement? May the Lord help us.

THE BEEKEEPERS OF OUR LAND; IS IT NOT TRUE THAT THEY ARE, AS A RULE, GODLY MEN?

L. C. Root once said at the opening of a convention in York State, that our industry is an honest and an innocent one, and that we produce something that is of *benefit* to humanity, unlike the occupation of the brewers or distillers. Well, it rejoices my heart to see that the bee *literature* of our land is, as a rule, in the hands of God-fearing men. I was reminded of this by the letter following from one of the directors of the *Beekeepers' Review*:

In regard to the petition, "Lead us not into temptation (sermon in GLEANINGS for July 15) I would like to call your attention to this point: The Spanish version has it, "No dejamos caer en tentacion," "allow us not to fall in temptation" (or into temptation). It seems to me that this simplifies the matter, if this is a correct translation of the original text. What is your opinion?

Franklin, Tenn., July 24. J. M. BUCHANAN.

Many thanks, my good friend, for your additional light on this portion of the Lord's

prayer. Well, I should like it just as you have quoted it, and I would further add that I would put the word "fall" in italics—"allow us not to *fall* in temptation." That would take in the thought that temptation is good for us, as we have it in that beautiful hymn "Tempted and Tried." Jesus prayed for his disciples, not that they might be taken *out* of the world, but that they might be *delivered* from the evil. Now, then, let temptation come; yes, let it come with all of Satan's ingenuity and subtily; but let us meanwhile pray, and pray constantly, that the dear Savior will not *allow* us to fall, even if we *are* tempted. Many thanks, my good friend Buchanan, for your timely and wise suggestion. I believe the Holy Spirit prompted you to write it.

Cast thy bread upon the waters, for thou shalt find it after many days.—ECC. 11:1.

The two letters following by some coincidence reached me at almost exactly the same time. Years ago it used to be customary to drive bees with tobacco smoke; but after several of the younger ones had commenced using tobacco in order that they might be up-to-date beekeepers I remonstrated, and finally proclaimed through our little journal, as it was a little one at that time, that I would furnish a bee-smoker, free of charge, postage paid, to every one who would abstain from or give up the use of tobacco provided also that he would permit me to put his name and pledge in print. He also agreed to pay for the smoker should he ever use tobacco again. More than a thousand smokers were given away, and the pledges taken. It took some money to pay for the smokers and postage stamps to mail them; but I felt that this money was "treasure laid up in heaven," and I have good reason to believe it turned out that way. Now read the two letters:

Mr. A. I. Root:—On p. 714, Oct., 1885, I wrote you that I had decided to quit using tobacco, and asked that you send me a smoker, which at that time you were offering as an inducement to beekeepers to quit using tobacco. I received the smoker all right, and from that time until this day have not used tobacco in any form, and, more than that, have raised three boys, none of whom have used it. I have long since quit keeping bees, but have kept my promise to you. If you are still publishing GLEANINGS, I wish you would mail me a copy.

Woodlawn, Ala., Aug. 6.

C. W. PLANT.

Some 40 years ago A. I. Root did me a friendly service in inducing me to give up the use of tobacco, which I have never since used.

DR. A. W. THORNTON.

Ferndale, Wash., July 17.

Index to Gleanings in Bee Culture

Volume XLII

In using this index the reader should not fail to note that it is divided into five departments, namely, General, Editorial, A. I. Root's writings, Contributors, and Illustrations. The index of General includes everything except Editorials, Illustrations, and A. I. Root's writings.

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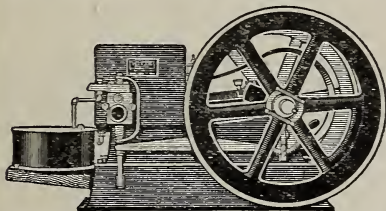


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Listerine has been imitated more than any other antiseptic. The formula of Listerine has never been changed and never will be, because there can be nothing better. Used and prescribed by dentists for 30 years. Demand genuine Listerine in the original package.

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New KEROSENE LIGHT BEATS ELECTRIC OR GASOLINE

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TWICE THE LIGHT ON HALF THE OIL

We don't ask you to pay us a cent until you have used this wonderful modern light in your own home ten days, then you may return it at our expense if not perfectly satisfied. You can't possibly lose a cent. We want to prove to you that it makes an ordinary oil lamp look like a candle; beats electric, gasoline or acetylene. Lights and is put out like old oil lamp. Tests at 14 leading Universities show that it

Burns 50 Hours on One Gallon
common coal oil (kerosene), no odor, smoke or noise, simple, clean, won't explode. Three million people already enjoying this powerful, white, steady light, nearest to sunlight. Guaranteed.

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will be given to the person who shows us an oil lamp equal to the new Aladdin in every way (details of offer given in our circular). Would we dare make such a challenge if there were the slightest doubt as to the merits of the Aladdin? **GET ONE FREE.** We want one user in each locality to whom we can refer customers. To that person we have a special introductory offer to make, under which one lamp is given free. Write quick for our 10-Day Absolutely Free Trial Proposition and learn how to get one free.

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Make \$100 to \$300 per Mo. Delivering the ALADDIN on our easy plan. No previous experience necessary. Practically every farm home and small town home will buy after trying. One farmer who had never sold anything in his life before writes: "I sold 51 lamps the first seven days." Another says: "I disposed of 54 lamps out of 31 calls." Thousands who are coining money endorse the Aladdin just as strongly.

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Will Spray as many Trees as Three Barrels of Lime Sulfur.



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We are World Distributors for **VREELAND'S "ELECTRO" SPRAY CHEMICALS** and **Arsenate of Lead Powder** (33 per cent), which, used wet or dry, has no equal in strength or texture. Avoid imitations.

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PUBLICATIONS ON BEE CULTURE

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The pamphlets and booklets listed below are of more than ordinary interest.

- 1 MY FIRST SEASON'S EXPERIENCE WITH THE HONEYBEE. By the "Spectator," of the *Outlook*, of New York. A ten-page leaflet detailing the experiences of this well-known writer. You will read the leaflet through before you lay it down. Free.
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- 9 HOW TO KEEP BEES. A book of 228 pages detailing in a most interesting manner the experiences of a beginner in such a way as to help other beginners. Price \$1.00 postpaid.
- 10 THE A B C OF BEE CULTURE. A complete encyclopedia of bees, of 712 pages, fully illustrated, \$2.00 postpaid; half leather, \$2.75.
- 11 GLEANINGS IN BEE CULTURE. A 64-page illustrated semi-monthly magazine—the leading exponent of bee culture in this country. Ten cents per issue, but to new subscribers we will furnish it six months for 25 cents.
- 12 BACKYARD BEEKEEPING. Six interesting lessons written in readable newspaper style. Many facts encouraging the "city bound" man or woman with the back-to-the-land longing. Free.
- 13 THE BUCKEYE BEEHIVE, or the management of bees in double-walled hives. Of special interest to the amateur beekeeper. The most complete booklet we publish for free distribution. Illustrated throughout; 84 pages.
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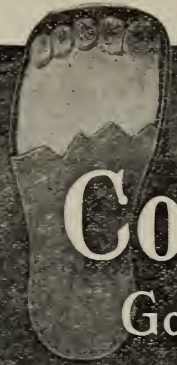
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The biggest dollar's worth you ever got in your life.

Thirty-one hundred and eighty pages of clear, precise, up-to-date farm information for one dollar! Just as a plain, raw commercial bargain in reading matter, this takes the cake.

You get your money back for any unexpired portion of your subscription, and out of 800,000 only twelve asked for a refund last year. 1 out of 66,666. \$1 for 5 full years is the price. Send A Dollar Bill today.

The Farm Journal

117 Washington Square, Philadelphia

Classified Advertisements

Notices will be inserted in these classified columns at 25 cents per line. Advertisements intended for this department can not be less than two lines, and should not exceed five lines, and you must say you want your advertisement in the Classified Columns or we will not be responsible for errors.

HONEY AND WAX FOR SALE

HONEY LABELS.—Lowest prices. Catalog and price list free. PEARL CARD CO., Clintonville, Ct.

FOR SALE.—Extracted clover honey, fine quality; 9 cts. per lb. JOE HANKE, Port Washington, Wis.

FOR SALE.—Choice extracted honey in new 60-lb. cans at 9 cts. per lb. J. P. MOORE, Morgan, Ky.

FOR SALE.—Extracted buckwheat honey in 160-lb. kegs. N. L. STEVENS, Venice Center, N. Y.

FOR SALE.—Light-amber extracted honey in 60-lb. cans; sample free. HENRY HETTEL, Marine, Ill.

\$19.20 gets a carrier of 8 24-lb. cases of new light-amber Florida partridge-pea honey.

J. J. WILDER, Cordele, Ga.

FOR SALE.—2000 lbs. of buckwheat and amber honey, 7 cts. in 60-lb. cans. GEORGE RAUCH, Orange Mountain Bee Farm, Guttenberg, N. J.

COMB HONEY.—No. 1 choice and No. 2 Colorado standard grades. Carload just in. State quantity wanted. DADANT & SONS, Hamilton, Ill.

FOR SALE.—Light-amber extracted honey in carload lots at 5 cts., by Tulare Co. Beekeepers' Association. C. W. TOMPKINS, Sec., Tulare, Cal.

FOR SALE.—Choice aster honey; has very rich and delicious flavor, in 60-lb. cans, two cans per case, at 7 cts., F. O. B. Brooksville, Ky. H. C. LEE.

FOR SALE.—Fine extracted honey in barrels, 8c; in 60-lb. cans, 8½ cts.; in 5 and 10 lb. pails, 10 cts. per lb. Sample, 10c. JULIUS GENTZ, Wabeno, Wis.

FOR SALE.—Best quality white-clover extracted honey in 60-lb. cans. State how much you can use, and I will quote price. L. S. GRIGGS, 711 Avon St., Flint, Mich.

FOR SALE.—50,000 pounds light extracted honey, well ripened and mild flavored, 7½ cts. by the case of two sixty-pound cans; in ten-case lots, even seven cents per pound. H. G. QUIRIN, Bellevue, Ohio.

EXTRACTED HONEY.—Best water-white and nice amber alfalfa in 60-lb., 30-lb., and smaller tins. State quantity you want. Special prices on ton lots or over. Several carloads just in.

DADANT & SONS, Hamilton, Ill.

FOR SALE.—Pure honey, California sage, water-white, 120 lbs., 10 cts. per lb. Light-amber honey, 120 lbs. 9 cts. We have honey of several flavors. Price in gallon cans upon request. Sample, 10 cts. each. I. J. STRINGHAM, 105 Park Place, New York.

FOR SALE.—Spanish needle, heartsease, No. 1 light comb, \$3.00 per case; Fancy, \$3.25; 24 Danz. sections to case, 6 to 9 cases to carrier. Extracted, 120-lb. cases, 9c per pound.

W. A. LATSHAW CO., Carlisle, Ind.

Dealers in honey, ask for a late number of the *Beekeepers' Review*, containing a list of 75 members having honey for sale. Address THE BEEKEEPERS' REVIEW, Northstar, Michigan.

We are all sold out of amber and baker stock of extracted honey, and all intermediate grades, but still have a good stock of our very best white-clover-basswood blend in new 60-lb. net tin cans, two in a case for shipment. A sample will convince you that this lot of honey is the bargain of the season at the price we will send out what we have left.

E. D. TOWNSEND & SONS, Northstar, Mich.

FOR SALE.—California orange-blossom honey, extra fancy, at 9 cts. Safe arrival guaranteed. Sample free. JAMES MCKEE, Riverside Cal.

HONEY AND WAX WANTED

Beeswax bought and sold. STROHMEYER & ARPE Co., 139 Franklin St., New York City.

WANTED.—Comb, extracted honey, and beeswax. R. A. BURNETT & Co., 173 So. Water St., Chicago.

WANTED.—Comb honey. Give full description and price. A. I. ROOT CO., Des Moines, Iowa.

WANTED.—Extracted honey. Give full description and lowest price. W. HICKOX, Forsyth, Mont.

WANTED.—Beeswax and honey. Write us. SUPERIOR HONEY CO., Ogden, Utah (also Idaho Falls, Ida.)

WANTED.—Dark baking stock honey. State quantity, source, and price. A. G. WOODMAN CO., Grand Rapids, Mich.

WANTED.—Honey, extracted and comb, also beeswax. Will pay full market value. Write us when you have any to dispose of.

HILDRETH & SEGELKEN, New York City.

WANTED.—Buckwheat comb and extracted honey. Comb to be produced in standard sections, where fences or separators have been used. We prefer to have it packed in new shipping-cases of 24 sections each. All sections to be free from propolis, and well graded. Extracted to be heavy in body, of a good flavor, not mixed with other fall honey. We prefer it shipped in new 5-gallon cans or in small barrels. We want early shipments. State cash price for all grades delivered in Medina. THE A. I. ROOT CO.

FOR SALE

FOR SALE.—A full line of Root's goods at Root's prices. A. L. HEALY, Mayaguez, Porto Rico.

FOR SALE.—Full line of Root's goods at factory prices. E. M. DUNKEL, Osceola Mills, Pa.

FOR SALE.—A few Peerless beehives at \$2.00 each. L. F. HOWDEN MFG. CO., Fillmore, N. Y.

Beekeepers, let us send you our catalog of hives, smokers, foundation, veils, etc. They are nice and cheap. WHITE MFG. CO., Greenville, Tex.

FOR SALE.—Tennessee hams, bacon, and lard; comb and extracted honey; sun-dried apples. Write for delivered prices. J. E. HARRIS, Morristown, Tenn.

White-sweet-clover seed, 10,000 pounds unhulled at 12 cts. per lb.; 8000 pounds hulled cleaned seed at 20 cts. per lb.; sacks 25 cts. extra. Immediate shipment. B. F. SMITH, JR., Cowley, Wyo.

The Beekeepers' Review is now owned and published by the honey-producers themselves. It is the paper that all honey-producers should support. Twenty-one months, beginning with the April, 1914, number, for only \$1.00. Sample copy free. Address THE BEEKEEPERS' REVIEW, Northstar, Mich.

THE ROOT CANADIAN HOUSE, 185 Wright Ave., Toronto, Ont. Successors to the Chas. E. Hopper Co. A full line of beekeepers' supplies carried in stock. Honey and wax bought and sold. Extractors and engines. Subscribe for GLEANINGS IN BEE CULTURE and other bee-journals for which we are agents. Four per cent discount on December and January cash orders.

WANTS AND EXCHANGES

WANTED.—100 to 500 colonies of bees, will pay fair price. E. D. SIPPLE, Mason, Ky.

WANTED.—To buy apiary in Cuba. W. ROCKENBAUGH, 2028 E. Monmouth St., Philadelphia, Pa.

EXCHANGE FOR BEES.—Four lots, worth \$500, in Grand Rapids, Mich., for bees delivered here. JAMES MCKEE, Riverside, Cal.

WANTED.—To furnish every beekeeper within 500 miles of Boise, Idaho, with the best and cheapest bee supplies on the market, *quality considered*. Send me your order or a list of your requirements for 1914. Our catalog and price list will be mailed to you free. Order early and get the discounts. C. E. SHRIVER, Boise, Idaho.

REAL ESTATE

FOR SALE OR RENT.—320 acres rich, level, partly improved farm. D. E. LHOMMEDIEU, Colo, Iowa.

FOR SALE CHEAP.—40 acres good irrigated land, also 150 stands bees and extracting-outfit. WM. MCKIBBEN, Ontario, Ore.

PROFITABLE LITTLE FARMS in Shenandoah Valley of Virginia, 5 and 10 acre tracts, \$250 and up, easy terms; good fruit, vegetable, poultry, and livestock country. Large list of other farms. Send for literature now. F. LABAUME, Agr'l Agt. N. & W. Ry., 246 Arcade Bldg., Roanoke, Va.

FOR SALE.—An 8-room brick dwelling, all modern, well furnished; close in on main street in front of opera house; all clear; 555 colonies of bees; 700 filled comb-honey supers; 270 sets of clean combs; 500 empty supers; 65 empty hives; one auto truck; 4 houses; 400 shipping-cases; 8500 No. 1 sections; Cowan No. 15 extractor; tools, and other things too numerous to mention, all for \$10,000 if taken before Feb. 1, 1915. A. S. PARSON, 418 South Main, Rockyford, Colo.

SITUATION WANTED

WANTED.—A young man, American, no liquor nor tobacco, wishes a position in an apiary. JAMES M. OBER, Sebec Station, Maine.

WANTED.—By experienced beekeeper a position for the season of 1915. WM. HAMMOND, Sandpoint, Idaho.

WANTED.—Middle-aged German of good habits, ke to work in apiary where he could learn the usiness, special comb honey and queen-rearing; ave some experience. JULIUS W. SCHINNER, Box 292, Scotia, Cal.

BEEES AND QUEENS

Bees for rent and sale. OGDEN BEE AND HONEY Co., Ogden, Utah.

Italian queens. Nuclei a specialty. Full colonies. Satisfaction guaranteed. THE STOVER APIARIES, Mayhew, Miss.

We are booking orders now for early queens and nuclei at popular prices. If we cannot ship, will return your money immediately. OGDEN BEE AND HONEY Co., Ogden, Utah.

FOR SALE.—270 colonies of bees in 8-frame hives, 600 supers, 70 empty hives, and other fixtures, all in first-class shape. Price on application. J. B. MCKINSTRY, Longmont, Colo.

FOR SALE.—Golden Italian queens that produce golden bees; for gentleness and honey-gathering they are equal to any. Every queen guaranteed. Price \$1.00; 6 for \$5.50. WM. S. BARNETT, Barnett's, Va.

FOR SALE.—450 colonies of bees, extra hives, supers, and other accessories that go to make a complete up-to-date bee business, all in fine condition. H. B. HETHERINGTON, Cherry Valley, N. Y.

Golden Italian queens that produce golden bees, the brightest kind, gentle, and as good honey-gatherers as can be found; each, \$1.00; 6, \$5.00; tested, \$2.00; breeders, \$5.00 to \$10.00. J. B. BROCKWELL, Barnett's, Va.

California Italian queens, goldens and three-banders. Bees by the pound a specialty; also nuclei and full colonies. Orders booked now for the early spring months. Circular free. J. E. WING, 155 Schiele Ave., San Jose, Cal.

FOR SALE.—150 colonies bees in eight-frame double-body hives in fine shape; stores to last until June; Law's strain of Italians! one six-frame Root extractor; one four-ton and one three-ton honey-tanks; 150 empty hives, double body; 245 wood and wire excluders; one Root and one Hatch wax-press; extracting-house and good extracting outfit, located in Ventura Co., in as good mountain-sage ranges as there is in California; 42 miles from Los Angeles, 5 miles from railroad. Good auto road to apiary. The use of a three-room house, water piped in kitchen—house partly furnished. Lease expires in 1915. Price \$850. If taken soon, will include horse and harness for buggy. GEORGE W. RICH, 1279 E. 55th St., Los Angeles, Cal.

POULTRY

EGG STOCK.—Pure-bred pedigreed Barred Rock cockerels and hens. Mothers laid over 200 eggs in 10 months. Sires have 15 years of pedigreed breeding for eggs behind them. Grandmother laid 217 eggs in third year of production. Pen of my hens stand eighth among 100 pens in Missouri Egg-laying Contest. Eggs in season. Speak quick. B. F. W. THORPE, 358 S. Yellow Springs St., Springfield, Ohio.

MISCELLANEOUS

Poems by a beekeeper, cloth, \$1.00. R. C. HUGENTOBLE, Rt. 1, Cleves, Ohio.

Buckwheat flour, pure old-fashioned stone-ground; 25 lbs., \$1.00. "MILLER, E. Claridon, Ohio.

FOR SALE.—Motorcycle, \$35.00; telephones, \$1.00. PRESSLER, 1726 Armitage Ave., Chicago, Ill.

If you want to make sure of an eight-pound "Trinidad Dasheen-seed" shipment, in time for spring planting, send me \$1.00 now. M. LEIDERSDORF, Daytona, Fla.

BEEKEEPERS' DIRECTORY

Well-bred bees and queens. Hives and supplies. J. H. M. COOK, 70 Cortlandt St., New York.

Nutmeg Italian queens, leather color, after June 1. \$1.00 by return mail. A. W. YATES, Hartford, Ct.

QUEENS.—Improved red-clover Italians bred for business June 1 to Nov. 15, untested queens, 75 cts. each; dozen, \$8.00; select, \$1.00 each; dozen, \$10; tested queens, \$1.25 each; dozen, \$12.00. Safe arrival and satisfaction guaranteed. H. C. CLEMONS, Boyd, Ky.

A KIND WORD FROM FAR-OFF NEW ZEALAND. I don't wish to have GLEANINGS stopped. It is a fine journal. I am very much interested in friend A. I. Root's Home talks. May he live long to edit this department in GLEANINGS. THOMAS BLACKWELL.

Tryphena, Great Barrier, N. Z.

HAS "STACKS" OF THEM. I keep bees and am a reader of GLEANINGS. I keep every copy. I have stacks of them. I was at the Jenkintown field day, June 26, 1906. I shall never forget that day. I learned more than I could have learned at home in ten years. Pottstown, Pa., Nov. 16. WM. B. REITINGER.

Convention Notices

The 25th annual meeting of the Ontario Co. Beekeepers' Society will be held in the courthouse, Canandaigua, N. Y., on Tuesday, Jan. 12, 1915. An interesting program will be provided. A general invitation to attend is extended to the honey-producers of this and adjoining counties and the State. Come, bring the ladies, and have a good time with us. Naples, N. Y., Dec. 9. F. GREINER, Sec.

THE NATIONAL CONVENTION: LET US GET TOGETHER.

The coming meeting of the National Beekeepers' Association at Denver, in February, opens up the question of the possibilities of organized effort to uplift the honey business. As Secretary of the National I frequently receive letters asking the benefits of co-operation and the benefits of sustaining the National Association. In the past, trade and other conditions have not been favorable for the National to assist to any great extent in the material benefit of the members. Things have changed, until now it is possible to assist in a very material way to "increase the consumption, stimulate the demand, and stiffen the price of honey." Does not this appeal to you as being worth while? If you belong already, "keep boosting," and if you do not belong, get in and we can use you. We want snappy men to give life and enthusiasm to field meetings, hold them in every State, and in different portions of the State. Get the local people interested. Have them to take a part and stir up local enthusiasm. Plans are being perfected to form circuits of contiguous States so as to arrange grand State meetings. Publicity and sales plans will be arranged and conducted by local bee people, in an organized and systematic way. Other plans are being arranged, and we trust that the honey business is to see a great awakening in the near future. If you are a local producer, and have not yet developed your market to its limit, you are losing a valuable opportunity. The time is short when a honey route will be a valuable asset. The National the next year will tell you how to develop it.

Your first allegiance is to your local association, and then you owe it to yourself to join the National. If you have honey to sell, it will aid you to do it. If you buy honey it will assist you. What would a railroad accomplish without co-operation and organization? What can we not accomplish with thorough organization? If every beekeeper, little as well as big, were to join in the general movement to popularize honey more and more, this country would consume twice the present production at a much better price. If you hang back, you delay just that much the desired results. We will all agree on this one thing, if we do on no other: "Get together and boost to increase the consumption, stimulate the demand, and stiffen the price of honey."

Redkey, Ind. GEORGE W. WILLIAMS, Sec.

NATIONAL BEEKEEPERS' ASSOCIATION.

Preliminary announcement of the annual convention and official meetings of delegates from affiliated societies, to be held at the Auditorium Hotel, Denver, Colo., Tuesday, Wednesday, Thursday, Feb. 16, 17, 18, 1915. To be held jointly with the meeting of the Colorado Beekeepers' Association.

GENERAL ANNOUNCEMENT.

The reservation of hotel accommodations should be sent to the clerk, Auditorium Hotel. Rates are as follows:

Room without bath, single, \$1.00 per day and upward.

Room with bath, single, \$1.50 per day and upward.

Excellent café and meal service may be had. The hotel is convenient to all street-car connections and adjacent to railroads.

The convention apparently will have ample and comfortable quarters, with a large assembly hall, reception room, committee room, etc. The reception room will doubtless be used as an exhibition hall.

The following committee on local arrangements is announced: Director, Wesley Foster, Chairman, Boulder, Colo.; Mr. Louis F. Jouno, 4732 West 34th Ave., Denver, Colo., and Mr. N. L. Henthorne, President of the Colorado State Beekeepers' Association, Platteville, Colo. Members are at liberty to communicate with the committee concerning local details in regard to exhibits.

Local arrangements are in charge of a "Committee on Local Arrangements," also announced elsewhere. All communications for concessions or special provisions should be addressed to the chairman of this committee.

NOTICE TO DELEGATES.

The secretary has mailed to each affiliated association delegates' cards, to be used as credentials. It should be borne in mind that it is absolutely essential to send the original credential direct to Mr. George W. Williams, Secretary, Redkey, Ind., on or before February 1.

The local committee is making full arrangements for the convenience and pleasure of delegates and members.

EXHIBITION MATERIAL.

An invitation to make exhibits is elsewhere announced.

The program will consist of official executive meetings and of a program of lectures, demonstrations, etc., but of which at this time only a preliminary announcement can be made.

PROGRAM.

TUESDAY, FEBRUARY 16.

9:30 A. M.—Meeting called to order, and the organization of the convention.
Appointment of committees.
Presentation of credentials.
Report of Credentials Committee.
Announcements and invitations.

1:00 P. M.—President's report.

Reports of committees.

Transaction of business which shall regularly come before the session.

Continuation of program of papers.

8:00 P. M.—General session of the association for the reading of papers and for discussions.

WEDNESDAY, FEBRUARY 17.

9:00 A. M.—Delegates' session for the transaction of business, followed by the reading of papers.

1:00 P. M.—General program, continuing the reading of papers.

8:00 P. M.—Public session. At this time it is hoped to provide illustrated lectures and a program of general interest to the public. Arrangements are in hand for this.

THURSDAY, FEBRUARY 18.

9:00 A. M.—Business session, concluding the transactions of the association, followed by the reading of papers.

1:00 P. M.—Session for discussions and the reading of papers. Adjournment.

It may be desirable to hold a special session in the evening for those who do not leave town that night. Special arrangements for this will be announced during the convention.

PROGRAM OF PAPERS.

An effort is being made to secure the best talent in the country. Not all will be present to read their papers, but the members are assured of hearing some of the most recent and worthy remarks from the apicultural leaders on this continent. At present, however, it is merely possible to list these papers partially. Names with a star are expected to be present.

* Prof. E. G. Baldwin, Deland, Fla., title later.

* Prof. C. E. Bartholomew, Ames, Iowa, title later.

* E. J. Baxter, Nauvoo, Ill., title later.

* J. M. Buchanan, Franklin, Tenn., title later.

* D. H. Cogshall, W. Groton, N. Y., title later.

* E. G. Carr, New Egypt, N. J., title later.

* C. P. Dadant, Hamilton, Ill., title later.

Benjamin Davis, Tennessee, title later.

Edgar Elthorp, New York, title later.

* Wesley Foster, Boulder, Colo., title later.

N. E. France, Wisconsin, title later.

L. V. France, Wisconsin, title later.

J. G. Gustin, Missouri, "Some Legal Phases of Beekeeping."

George B. Howe, New York, "Breeding Bees."

* Prof. Francis Jager, Minnesota, title later.

Allen Latham, Connecticut, title later.

W. W. Leenhoff, Porto Rico, title later.

John H. Lovell, Maine, title later.

J. P. Merwin, New York, title later.

Prof. Frederick Millen, Michigan, title later.

* Frank C. Pellett, Iowa, "Inspection in Iowa."

* Prof. Morley Pettit, Canada, "The Production of Extracted Honey," "Apiary Inspection and the Disease Situation in Ontario."

- * Dr. E. F. Phillips, Washington, D. C., title later.
 * Frank Rauffhuss, Colorado, title later.
 * E. R. Root, Ohio, "Migratory Beekeeping."
 H. H. Root, Ohio, "Straining and Clarifying Honey."

Prof. F. W. L. Sladen, Canada, "Autumn Mating to Control Inheritance."
 Jay Smith, Indiana, "A Plea for Better Bees."
 * E. D. Townsend, Michigan, "A Competency for the Hive."

* George W. Williams, Indiana, "Honey Publicity."
 A. Y. Yates, Connecticut, "The Educational Value of Beekeepers' Associations."

A considerable number of other contributions have been solicited and are anticipated.

EXHIBITS.

It is impossible to announce the exact nature of exhibits; but supply-houses, and glass and can manufacturers, as well as others, are making arrangements.

Amherst, Mass.

B. N. GATES, President.

All those interested are invited to make a display of material pertaining to beekeeping at the National Beekeepers' Association convention to be held in Denver, Colo., Feb. 16, 17, 18, 1915. In order that proper space and provisions may be made, it is desirable for those contemplating the making of displays to address the undersigned.

Amherst, Mass., Dec. 9.

B. N. GATES.

MEETING OF THE COLORADO HONEY-PRODUCERS' ASSOCIATION, AUDITORIUM HOTEL, DENVER, COLO., DEC. 28, 29.

PROGRAM.

1:30 P. M., MONDAY.

1. Brood-rearing for crop results.
 a Harrison H. Brown, La Plata, N. M.
 b W. A. Dolson, Avondale, Colo.
2. What does it cost to produce a case of comb honey?
 a A. J. McCarty, Longmont, Colo.
 b A. C. Van Galder, Berthoud, Colo.
3. What does it cost to produce a case of extract honey?
 a Chas. Adams, Greeley, Colo.
 b W. V. Ranney, Lander, Wyo.
4. Efficiency in the apiary.
 W. L. Porter, Caldwell, Idaho.

7:30 P. M.—ROUND TABLE.

1. Does it pay to introduce new stock?
2. How often should we requeen?
3. Is it profitable to keep a queen until she is 3 years old?
4. Should we use full sheets of brood foundation?
5. Shall we amend our grading rules?
6. Does it pay to use inside covers?
7. Is the practice of using bait combs profitable?
8. Would it be profitable in this climate to practice winter protection?
9. Which is the better location for the hive—in the shade or in the sun?
10. Is it profitable to use wide foundation in the section?
11. What are the causes of "loafing" during the honey-flow, and what are the best remedies?
12. Which is the more profitable—the clipped or the unclipped queen?
13. When is it time to begin to prepare the bees for your 1915 crop?
14. Question-box.

10 A. M. TUESDAY, BUSINESS SESSION.

12 M.—Luncheon free to members of the association.

1:30 P. M.—Business session continued.

Election of officers.

Round Table continued.

SPECIAL NOTICES

BY OUR BUSINESS MANAGER.

BEEWAX MARKET.

We quote beeswax at a further decline of a cent a pound in accord with general market conditions. Our price, till further notice, will be 28 cts. cash, 31 in trade, for average quality delivered here. If

you want foundation in exchange for your wax we are prepared to furnish it at the usual exchange rates quoted on application.

EMPTY 60-LB. CANS, 2 IN A CASE.

We offer from here or Philadelphia good second-hand 60-lb. honey-cans, two in a case, at \$3.00 for 10 cases; \$6.50 for 25; \$12.50 for 50.

In emptying the cans we save only the best, free from rust on the inside. Boxes are repaired if needed, and made as good as new. These are a bargain to any one wanting a cheap container. They are much cheaper and more desirable to use than barrels for any purpose.

SWEET-CLOVER SEED ADVANCED.

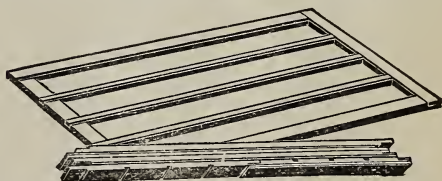
The market price of white-sweet-clover seed is firm at an advance over prices last quoted. We have only a limited supply, and quote for the present, subject to a supply on hand, as follows:

Prices in lots of	1 lb.	10 lb.	25 lb.	100 lb.
White sweet clover, unhulled	.22	\$2.00	\$4.75	\$18.00
<i>Melilotus alba</i> , biennial				
White sweet clover, hulled	.28	2.60	6.25	24.00
Yellow sweet clover, unh'd.	.20	1.80	4.25	16.00
<i>Melilotus officinalis</i> , bien.				
Yellow sweet clover, hulled	.26	2.40	5.75	22.00
Yellow sweet clover	.08	.60	1.25	4.00
<i>Melilotus Indica</i> , annual (hulled old seed).				

You will note that yellow is now quoted lower than the white because of a lighter demand. It comes into bloom two to three weeks earlier than the white, and is, therefore, desirable for beekeepers in many localities.

HOT-BED SASH.

Now is the time to get ready for early vegetables started under glass. We have a booklet entitled "How to Make and Run a Hotbed," which we will mail to those interested. Our sash are made of cypress, which is most durable; size, 3 ft. 4 in. by 6 ft. for four rows of 8-inch glass. Shipped K. D. at \$1.00 each; \$4.75 for five, or \$9.00 for ten, without glass; 8 x 10 glass, 90 lights to box, at \$2.80 per



box; five boxes at \$2.70. As regularly furnished, the bars are grooved for glass to slide in end to end. If preferred, and you so specify in your order, we will furnish them rabbeted for glass to be lapped and puttied in. We can also furnish special sizes to order, prices on application. We carry them for three rows of eleven-inch glass at regular price. In lots of ten or more we can also furnish them 3 ft. by 6 ft. for three rows of ten-inch glass at regular price.

SECOND-HAND FOUNDATION MILLS.

We have to offer the following list of foundation machines which have been used, but are in fair condition. In many cases they will answer as well as a new machine where you have only a moderate output. Send for samples of any mill in the list which may interest you.

No. 0139, 2½ x 6 hexagonal thin-super mill in very good condition. Price \$14.00.

No. 0140, 2½ x 6 hexagonal thin-super mill in very good condition. Price \$14.00.

No. 0147, 2½ x 6 hexagonal thin-super mill in good condition. Price \$12.00.

No. 0153, 2½ x 6 hexagonal thin-super mill in very good condition. Price \$14.00.

No. 0156, 2½ x 6 hexagonal extra thin-super mill in fair condition. Price \$10.00.

No. 0165, 2½ x 6 hexagonal extra thin-super mill in fair condition. Price \$10.00.

No. 0183, 2½ x 6 hexagonal thin-super mill in very good condition. Price \$14.00.

No. 0207, 2½ x 6 hexagonal thin-super Dunham mill in good condition. Price \$10.00.

No. 0214, 2½ x 10 hexagonal light medium-brood mill in poor condition; rolls quite badly pitted; will make fair foundation. Price \$13.00.

No. 0218, 2½ x 10 hexagonal medium-brood mill. This is practically a new mill in excellent condition. Price \$30.00.

No. 0219, 2½ x 10 hexagonal medium-brood mill with an injured spot near one end; in good condition. Price \$16.00.

No. 0220, 2½ x 10 hexagonal medium-brood mill in fair condition. Price \$18.00.

No. 0221, 2½ x 10 hexagonal medium-brood mill; good except for a spot 2½ inches from end of roll. Price \$15.00.

No. 0222, 2½ x 6 hexagonal thin-super mill in extra good condition. Price \$14.00.

No. 0223, 2½ x 12 hexagonal medium-brood mill in very good condition. Price \$30.00.

No. 4119, 2½ x 10 medium-brood mill. A new mill tested and returned only because plans were changed; in excellent condition. Price \$32.00.

SPECIAL NOTICES

EVA I. ROOT

SPECIAL NOTICE TO ALL MY GOOD FRIENDS.

Send all requests for dasheen tubers, Rainbow corn, printed leaflets ("The Defeat of Injustice"), catalogs, etc., to *Medina, Ohio*, and not to me here in Bradentown, Fla. I have no stock of anything here—nothing to sell, nothing to give away (except "advice" on an *addressed postal card*). If you send *here* it will cause delay, for I shall have to forward your letters to Medina, Ohio, where there are plenty of clerks (young and spry) ready to do your bidding with the aid of an up-to-date well-equipped business office. It is true, dasheen tubers will be mailed here; but the wrappers are addressed and stamps put on in Medina.

THE ROYAL PALM NURSERIES' NEW CATALOG.

The 1915 catalog put out by the Reasoner Brothers, of Oneco, Fla., outstrips all former ones. The beautiful half-tones all over its more than 60 pages is next thing to a visit to the grounds covering many acres. The colored plate of the new pink grapefruit, the "Toster," makes one's mouth water to look at it. If you want to study up just what and how to grow stuff in Florida this catalog will give you a fund of information. This is the place where every thing is grown in pots, as I have mentioned before; and even fruit-trees (small ones) are sent out as potted plants. If you follow instructions your stuff is almost sure to grow. The Reasoners have been so many years in the business I do not know of any one more competent to tell you what are swindles and what are of genuine value in the way of newly advertised novelties. Especial attention is given in this catalog to telling which plants are hardy, half hardy, or tender, and need protection.

KIND WORDS.

GLORY FOR OREGON AND SHAME FOR OHIO.

Friend Root:—Glory! glory! glory! Oregon goes dry by a whooping majority. God bless our women. It was their vote that made it possible. Washington, Colorado, and Arizona all in line (shame on Ohio). Portland, Ore., Nov. 6. E. J. LADD.

A KIND WORD FROM A VERY OLD FRIEND.

I have been a careful reader of GLEANINGS most of the time since about 1876, and prayerful reader for about 27 years. I am a life subscriber to the *Christian Herald* (one of the 2000 that helped to build the Children's Temple, by subscribing as a life subscriber. I enjoy reading the *American Bee Journal* very much since the late management. I met Mr. Dadant at the Ames College a couple of weeks ago (at our State convention), and he asked me the same thing that his son did at Madison, Wis.; that is, if I were a Frenchman. No, dear friends, I guess I am more of a Yankee.

The "Return of Pollyanna" is now being published in the *Christian Herald*, beginning Nov. 25, and certainly bids fair to outrival the first part that was published some time ago. I wish every family in the United States could read it, as it is certainly

a great sunshine for dull families, hospitals, shut-ins, etc. D. E. LHOMMEDIEU.

Colo, Iowa, December 1.

A KIND WORD AND SOMETHING MORE, FROM WAYNE B. WHEELER.

Mr. A. I. Root:—Your splendid letter came like a ray of sunshine this morning, and I said to myself as I read it, "Thank God for men like A. I. Root, who has faith and courage stronger than many who are younger in years." We are not discouraged in the least in the fight. We must re-form our lines and fight harder than ever. There was no reversal of sentiment in this last campaign. We simply applied temperance sentiment to a new unit of government. Heretofore, when we controlled sixty counties in the State, we could elect a majority of the legislature and pass temperance laws. We could then take those laws back into the sixty or more counties and apply them. Cincinnati would send us 12 or 14 votes to the legislature, and 12 counties like Medina would offset Cincinnati.

Under our new form of government—the I. and R.—Cincinnati can pile up 75,000 wet majority. It takes 40 or 50 counties like Medina or similar dry counties to offset that majority. In other words, we face the new problem of the State going up or down as a unit. This put on us a big responsibility, but the recent vote showed that 71 counties voted for State prohibition, 17 against it; 79 voted against Home Rule and 9 for it. Yet nine wet counties under direct legislation furnished a bigger wet majority than the 79 furnished dry majority. We must carry on the fight and get our dry vote more solidly united in dry territory, and hammer away in wet territory until we have broken down their large majorities. With God's help, and the help of men like yourself, we are going to do it.

Columbus, O., Nov. 24. W. B. WHEELER.

A KIND WORD FROM FAR-AWAY AUSTRALIA.

As I am sending my subscription to GLEANINGS I cannot let the opportunity to send you a short letter pass. We like GLEANINGS. It is a bright, helpful little paper. I said we because it is read by the family. The young people invariably read from back to front—not particularly interested in some of the front. The first thing is, "What does A. I. say this time?" I must confess I often do the same—that is, start with Home papers first.

Of course I am very much interested in some of the bee articles too. I have only about 40 colonies, and think I could get along with them very well now without GLEANINGS. I said something of the kind to my wife a short time ago. "Oh, yes!" she said; "I dare say you could; but I should not like to be without that. It would be like losing a very old friend, so we are going to stick to our old friend."

On reading over what I have written it looks as if I were writing a testimonial for some of those quack medicines you dislike so much. However, it is the truth. Those temperance and Home talks must do a lot of good going into thousands of homes. How much, no one can tell. I sincerely hope you will be spared to reach the century mark, as you state you and Mr. Terry are trying to do. Dr. C. C. Miller is coming along pretty well, seeing he was an invalid 50 years ago. I hope you are training one of your boys (who are getting to be rather old-fashioned boys by now) to take on your Home papers, temperance, and gardening (I am interested in all your departments but poultry). It would leave a big blank if you got too ill to do it. I dare say you will like to know a little about Queensland. I think few people who have not visited it have any idea of the difference in climate, and, of course, trees and vegetation, there is in this one state. North is very hot, getting pretty near the equator, while here in the south, especially on the range where I am, it is a temperate climate. We are on a ledge or plateau near the top of the range, a little over 2000 feet above sea-level. We grow most of the fruit and vegetables grown in temperate climates like England, say, while every kind of tropical tree or plant will grow up north or somewhere between the two. Almost if not quite every fruit and vegetable can be grown in some part of the state. It is a great sheep and cattle country. An American company has just started meat-works in Brisbane. They have spent, the papers say, near a million pounds (not dollars) in their works. We also have some very rich gold-mines.

J. L. JOHNSON.

Crow's Nest, Queensland, Australia.

Beauty Patterns

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Selling Price 10 cents
each, and RENEWAL to

GLEANINGS IN BEE CULTURE 1 YEAR

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Select any TWO patterns as premium with subscription to **GLEANINGS**, being sure to give the pattern number and the size desired, sending \$1.00 in payment.

The patterns may be mailed to one address and **GLEANINGS** to another, if the sender of the order prefers.

The A. I. Root Company
Medina, Ohio

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(Foreign postage 60c extra)



1167.—Girl's Dress. Cut in 4 sizes: 4, 6, 8, and 10 yrs. It requires 3 yards of 44-inch material for an ear size. Price 10c.

1152.—Girl's Blouse Dress with Attached Skirt. Cut 4 sizes: 8, 10, 12, and 14 years. It requires $3\frac{1}{4}$ yards 44-inch material for a 10-year size. Price 10c.

9934.—Ladies' House Dress. Cut in 7 Sizes 32:, 34, 36, 38, 40, 42, and 44 inches, bust measure. It requires 6 yards of 36-inch material for a medium size. The skirt measures $1\frac{1}{4}$ yards at the foot, in a medium size. Price 10c.

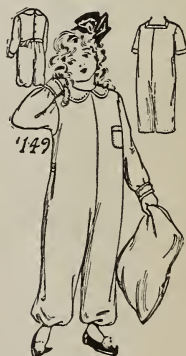
1144.—Ladies' Apron with Princess Front. Cut in 3 Sizes: Small, medium, and large. It requires $4\frac{7}{8}$ yards of 27-inch material for a medium size. Price 10c.

9930.—Girl's Apron. Cut in 5 sizes: 4, 6, 8, 10, and 12 years. It requires $2\frac{1}{2}$ yards of 27-inch material for a 6-year size. Price 10c.

1149.—Child's Night Drawers. Cut in 5 sizes: 2, 4, 6, 8, and 10 years. It requires $3\frac{1}{2}$ yards of 36-inch material for an 8-year size. Price 10c.

1162-1161.—Ladies' Costume. Waist, 1162. Cut in 5 Sizes: 34, 36, 38, 40, and 42 inches, bust measure. Skirt, 1161. Cut in 5 sizes: 22, 24, 26, 28, and 30 inches waist measure. It requires $2\frac{1}{2}$ yards of 40-inch material for the skirt without flounces, and 5 yards with flounces, for a 24-inch size. The waist requires $4\frac{1}{4}$ yards of 40-inch material for a 36-inch size. Without the cape section it requires $\frac{5}{8}$ yard less. The skirt measures about 2 yards at its lower edge. This calls for two separate patterns, 10c for each.

1172.—Ladies' Dress. Cut in 6 sizes: 34, 36, 38, 40, 42, and 44 inches bust measure. It requires $2\frac{1}{4}$ yards of 44-inch material for the skirt, and 6 yards for tunic and waist for a 36-inch size. The skirt measures about $2\frac{1}{2}$ yards at the foot. Price 10c.



The Best Time to buy Supplies

Early-order cash discounts apply here just as they do at the factory. We give exactly the same discount that is granted by the manufacturers of these famous goods, and the prices in our special catalog are the same as their own. There is a special saving in ordering from us—FREIGHT. Better give this careful consideration before sending elsewhere.

THE CASH DISCOUNT ON EARLY ORDERS
PLACED DURING THE MONTH OF
DECEMBER IS 4 PER CENT.

As usual we have a large and complete stock on hand, which places us in a position to take care of your orders promptly. By ordering now you will receive your goods promptly, avoiding the rush in the spring, and you can put them together in your spare time, thereby saving extra expense when you are badly in need of them.

WEED'S NEW-PROCESS COMB FOUNDATION

We have a big demand for this product, and are turning out comb foundation of unexcelled quality. Include what you will need for the opening of next season in your early order, and the same will be held subject to your convenience if desired; but get your order in now and save four per cent.

Toepperwein & Mayfield Co.
Nolan and Cherry Sts. San Antonio, Texas

Special Numbers for 1915

There was a time when we were fearful that our readers were not appreciating the special numbers, our fear in this respect being prompted, perhaps, by some adverse criticism of the plan. However, we are convinced that the very large majority are in favor of having certain subjects discussed in a full and comprehensive manner, nearly a whole issue of GLEANINGS being devoted to the subject in question. Accordingly we are making a selection of subjects for 1915, taking without exception subjects that have been suggested by our readers themselves.

Feb. 1.—EXPERIENCES OF PROMINENT BEEKEEPERS.

In this number we shall present an array of autobiographies, so to speak, from a large number of well-known beekeepers who will tell how they increased their business from a small number of colonies to a large number. In other words, how they progressed from an amateur to a professional. These men will discuss methods of making increase, buying bees, prices paid, etc.

April 1.—QUINBY NUMBER. One of the most successful exponents of modern beekeeping, and one whose pioneer work paved the way for beekeepers for all time to come, is Moses Quinby. Mr. L. C. Root, a son-in-law of Mr. Quinby, is going to furnish a number of interesting points in regard to the life and experience of Mr. Quinby never before made public, together with illustrations of the old home, etc. In this number we shall present a good many of Mr. Quinby's views on different subjects connected with beekeeping, some of which beekeepers are still debating.

August 1.—NEW AND OLD HONEY PLANTS. It has been a long time since any subject mentioned in GLEANINGS has been received with such enthusiasm as the subject of bee-botany. We are constantly learning of new honey-plants in various localities that are proving valuable, and at the same time there are many old honey-plants which beginners or beekeepers in other localities do not know. In this number we hope to start on a subject that shall not end for some time. In fact, GLEANINGS expects to devote more space to the consideration of honey-plants than ever before—not only in this one issue, but in many of the issues for 1915 as well.

October 1.—HONEY FOR COOKING AND FOR THE TABLE; HONEY AS A REMEDY. People who do not customarily use honey often show a woeful lack of knowledge concerning its use on the table, as well as in cooking. New users of honey are quite apt to store it in a refrigerator, or some other damp cool place, and when it goes upon the table it is anything but inviting in appearance. In this number, which will be full of information that the producer of honey can use to good advantage in disposing of his crop, we shall present a number of articles on the food value of honey—on different ways of serving honey, and on the use of honey in cooking. Included with this latter will be a number of new recipes that have been found especially valuable.

A great many physicians are using honey in their practice, recommending it to their patients for various purposes. We shall devote considerable space in this number to the use of honey as a remedy. While we may not show pictures to prove the comparative results "before and after taking," we believe that this number will serve to furnish the material to be used to convince any consumer that honey is a healthful food, and that he cannot afford to get along without it.

The "New" Garden Magazine for 1915

Plans have been perfected for 1915 which will make the GARDEN MAGAZINE even more practical to the progress amateur gardener than ever before. It may well be called "new" GARDEN MAGAZINE. New plants, new flowers, new vegetables during 1915 will be brought before the notice of readers as quickly as the facts are available.

Special Features for 1915

Roberta of Roseberry Gardens

By Frances Duncan
The Author of "The Garden Doctor"

This is more than a mere romance hung around a garden. It is chock full of practical garden facts, dealing with the relationships of the nurseryman and the amateur who buys from a nursery.

The Garden Plan Every Month

The editors have secured the co-operation of competent authorities in garden design for the preparation of a series of what may be called typical layouts, one of which will be published in each number during the coming year, and will deal with plots varying in size from the city lot to several acres. Suggestive ideas will be given for the development of the property, shrubbery to be used, borders, etc.

In the Greenhouse

A series of timely, practical hints for the amateur who has a small greenhouse.

The Month's Reminder

Tells the amateur and beginner what to do and what pitfalls to avoid.

The War on Bugs

A new kind of spraying calendar which will cover in an entirely new way from a practical gardener's point of view, how

In their proper season numbers will be prepared with special reference to particular needs of the moment, i. e., "Planting on Paper," "Seed Sowing," "Spring Planting," and other planting specials.

to combat with pests and diseases in parts of the garden.

The Fruit Garden, The Vegetable Garden

These subjects are treated from home point of view. There is an essential difference between growing fruit for market and for one's own table. Garden Magazine point of view is home exclusively.



Picture Feature

With the new cover of The Garden Magazine, opportunity is given for picture portraits, presenting them in full color. Watch the cover each month for picture portraits of real interest.

The Garden Magazine

Gleanings in Bee Culture

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